ORDER NO. AD8904084A3

Service Manual

COMPACT disc DIGITAL AUDIO

DIGITAL

Compact Disc Player

SL-P202

Color

(K) ..... Black Type

Area

Country Code	Area	Color
(XL)	Australia	(K)
(XA)	Third Region	(K)

Please use this manual together with the service manual for Model No. SL-P202, Order No. AD8812327C2.

CHANGES

■ REPLACEMENT PARTS LIST

Notes: *Mentioned in this parts list are only those different from Model SL-P202 (E) area, all other parts are the same as for SL-P202 (E) area.

*Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

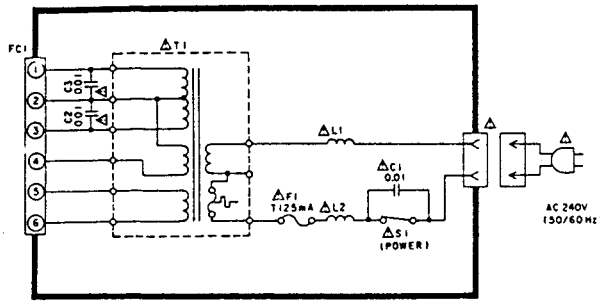
Ref No.	Change of Part No. SL-P202 (E) ⟶ **SL-P202 (XL • XA)**		Part Name & Description	Remarks
CABINET AND CHASSIS				
2	SGPD800ZF2D	**SGPD800ZF10Q**	REAR PANEL for (XA) area	Change
		RGR0032	REAR PANEL for (XL) area	〃
17 ⚠	SJS9236	**SJSD16**	AC INLET for (XL) area	〃
ACCESSORIES				
A1	SQUD414	**SQUD414-1**	INSTRUCTIONS MANUAL	Change
A2 ⚠	SJA187	**RJA0004**	POWER CORD for (XA) area	〃
		SJA173	POWER CORD for (XL) area	〃
A4 ⚠	———	**SJP2915**	AC PLUG ADAPTOR for (XA) area	Addition
IC PROTECTORS				
ICP1	———	**SRUF38**	I.C PROTECTOR for (XA) area	Addition
ICP2	———	**SRUF38**	I.C PROTECTOR for (XA) area	〃
TRANSFORMER				
T1 ⚠	SLTD5K097SE	**SLTD5K099SX**	POWER TRANSFORMER for (XA) area	Change
		SLTD5K098SG	POWER TRANSFORMER for (XL) area	〃
FUSE				
F1 ⚠	XBA2C012TB0	**XBA2C025TB0**	FUSE, 250 V, T250 mA for (XA) area	Change
SWITCH				
S2 ⚠	———	**SSR187-1**	VOLTAGE SELECTOR SWITCH for (XA) area	Addition

Technics

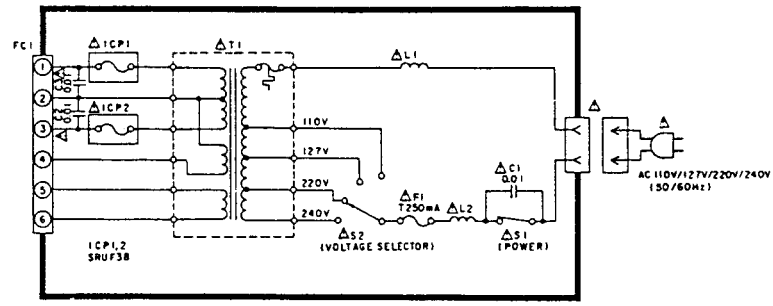
Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

■ SCHEMATIC DIAGRAM (Power supply circuit)

●For (XL) area.

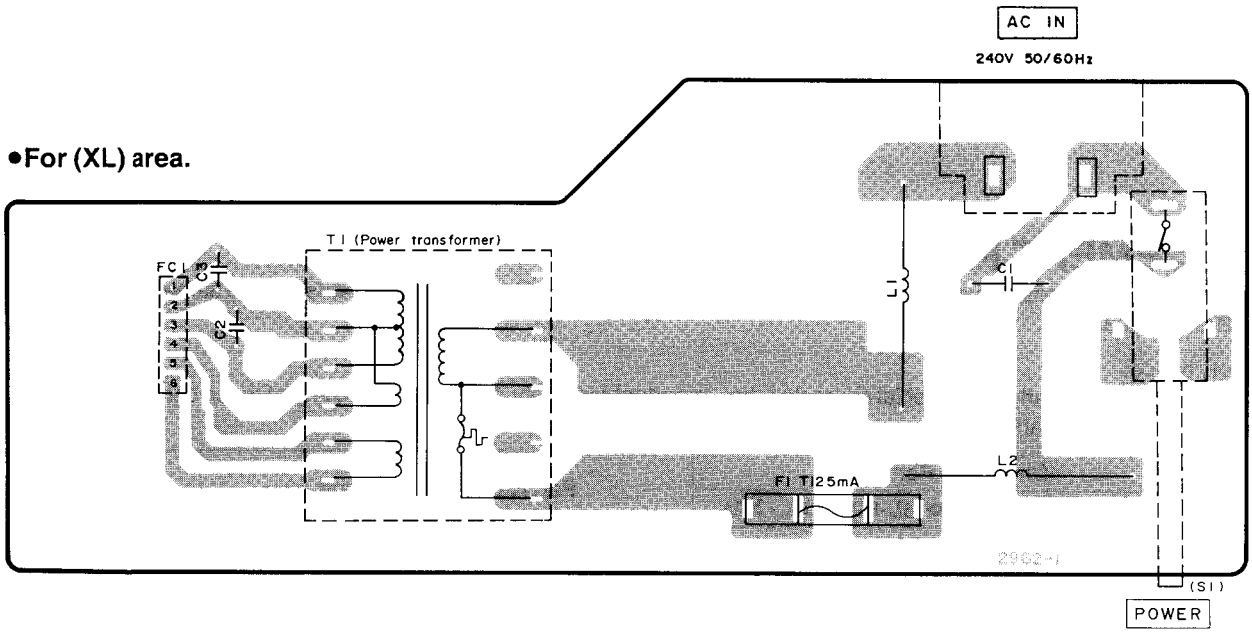


●For (XA) area.

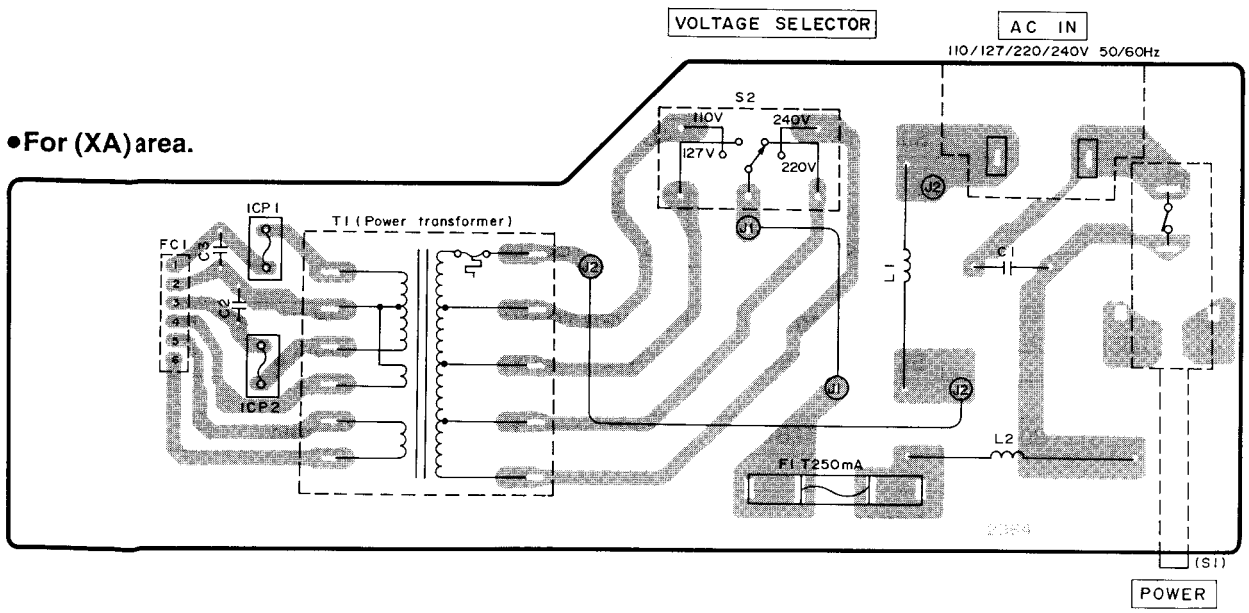


■ PRINTED CIRCUIT BOARDS (Power supply P.C.B.)

●For (XL) area.



●For (XA) area.



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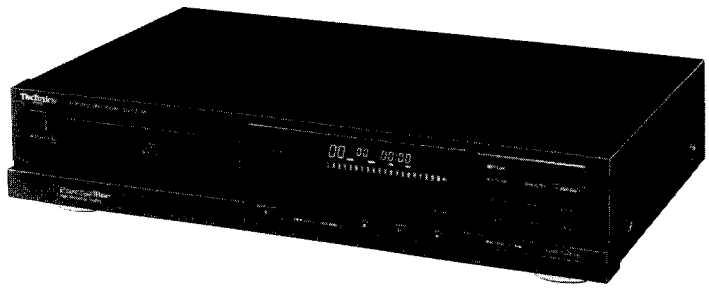
Service Manual

Compact Disc Player

SL-P202

COMPACT disc DIGITAL AUDIO

DIGITAL



Color

(K)...Silver Type (S)...Black Type

Area

Country Code	Area	Color
(E)	Continental Europe.	(S) (K)

SPECIFICATIONS

■ **Audio**

No. of channels:	2 (left and right, stereo)
Frequency response:	2–20,000 Hz±0.5 dB
Output voltage:	2 V (at 0 dB)
Dynamic range:	96 dB
S/N ratio:	96 dB
Harmonic distortion:	0.003% (1 kHz, 0 dB)
Total harmonic distortion:	0.005% (1 kHz, 0 dB)
Wow and flutter:	Below measurable limit
Output impedance:	Approx. 600Ω
Load impedance:	More than 10 kΩ

■ **Signal Format**

Sampling frequency:	44.1 kHz
D-A conversion:	16-bit linear

■ **Pickup**

Wavelength:	780 nm

■ **General**

Power supply:	AC 50/60 Hz, 220 V
Power consumption:	11 W
Dimensions (W×H×D)	430×92×274 mm
Weight	3.6 kg

Specifications subject to change without notice.
Weight and dimensions shown are approximate.

Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

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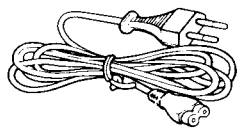
■ ACCESSORIES

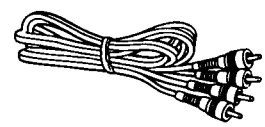
•AC power supply cord .. 1

(SJA187)



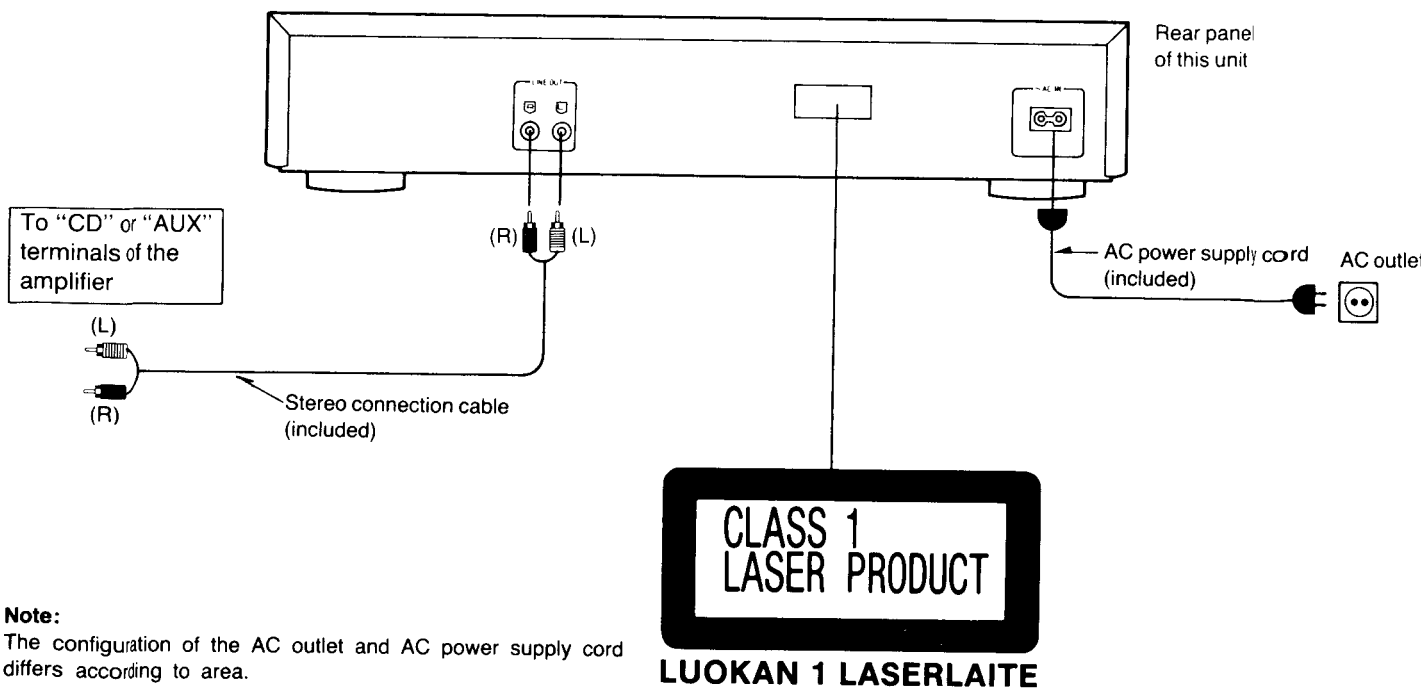
•Stereo connection cable 1

(SJP2249-3)



■ CONNECTIONS

Turn power off on all components before making connections.



Note:
The configuration of the AC outlet and AC power supply cord differs according to area.

■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 µW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laserd diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

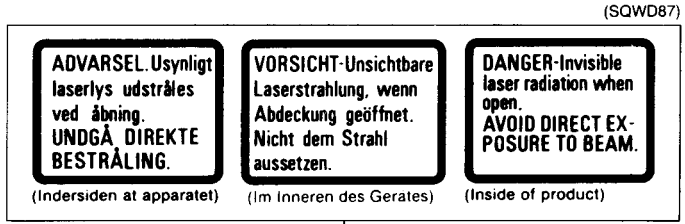
Wellenlänge: 780 nm
Maximale strehlungsleistung der lasereinheit: 100 µW/VDE

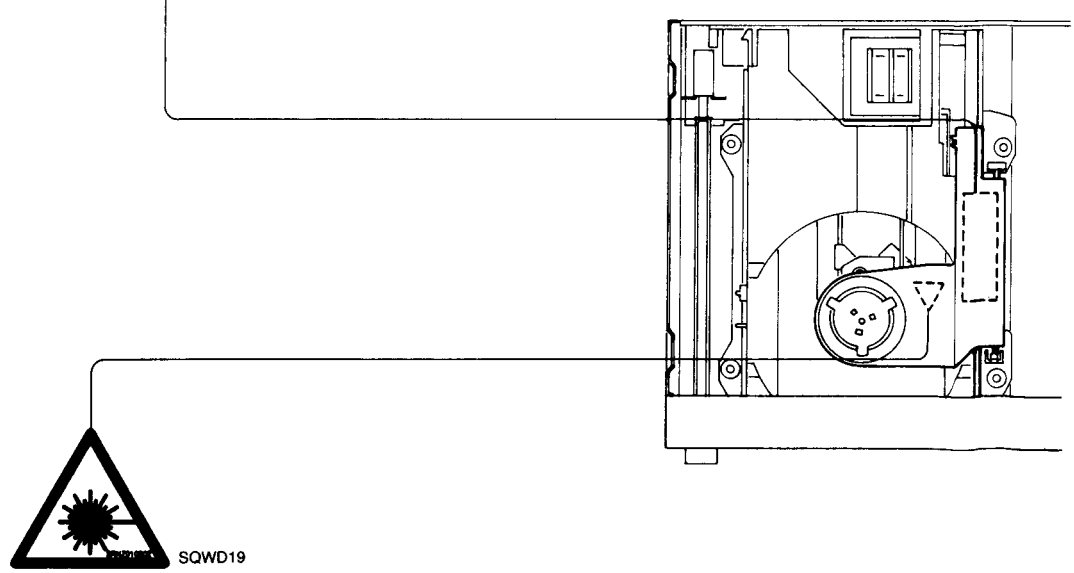
Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.

(SQWD87)

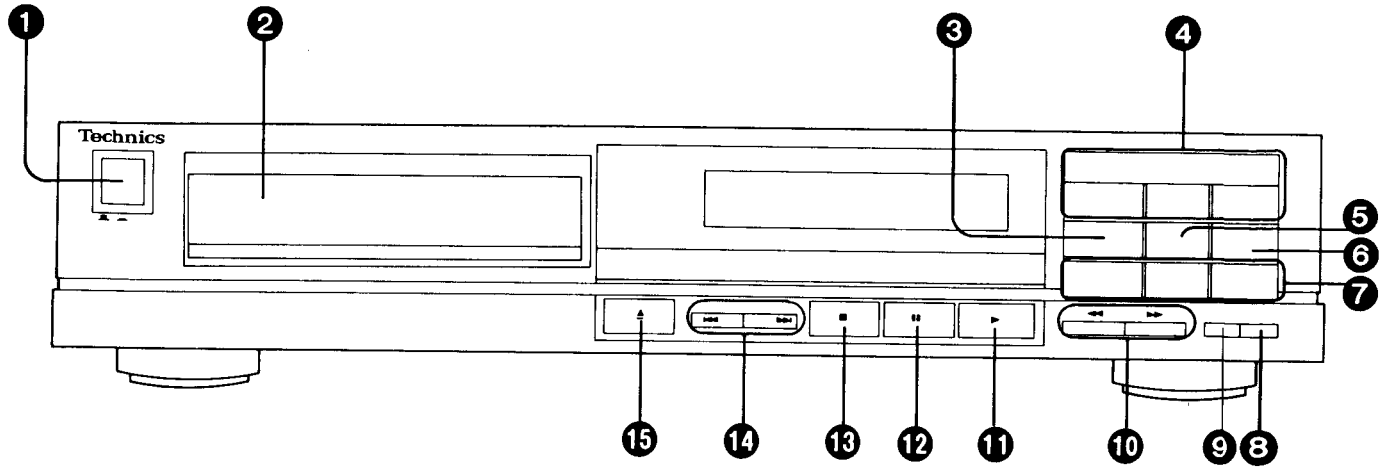

ADVARSEL. Usynligt laserlys udstråles ved åbning. UNDGÅ DIREKTE BESTRÅLING.
(Indersiden at apparatet)
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.
(Im Inneren des Gerates)
DANGER-Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
(Inside of product)



SQWD19

VAROITUS! Laite sisältää laserdiodin,
joka lähettää näkymätöntä silmille
vaarallista lasersäteilya

■ LOCATION OF CONTROLS



Control section

❶ Power switch (power)

If a disc has already been loaded, play will begin when the power is turned ON.

❷ Disc holder

❸ Time mode select button (time mode)

❹ Buttons for edit function (edit)

- **Edit tape length button (tape length)**
  When compact discs are to be recorded to tape, this button can be used to calculate the number of tracks that can be recorded on each side of the tape, depending on the length of the cassette tape used, so that as little tape as possible is wasted.
- **Tape-side select button (side A/B)**
  When recording compact discs to tape, this button can be used to check the number of tracks and amount of tape left over for side A or B.
- **Disc link button (disc link)**
  This button can be used for edit recording from several discs.

❺ Random play button (random)

This button can be used to play the tracks on a disc in a random sequence.

❻ Music scan button (music scan)

This button can be used to play the first part of each track in order.

❼ Buttons for program function

- **Programmed-play button (program)**
  Pressing this button initiates the programmed play mode. You can then enter specific tracks using the skip buttons.
- **Clear button (clear)**
  This button can be used to clear tracks from the programmed sequence one at a time.
- **Recall button (recall)**
  This button can be used to display the contents of the programmed track sequence for confirmation.

❽ Auto cue button (auto cue)

Pressing this button causes the unit to skip automatically to the beginning of the next track on the disc and switch to the play standby mode.

❾ Repeat button (repeat)

❿ Search buttons (◀◀ search ▶▶)

These buttons can be used to move rapidly forward or backward on the disc during play. The search speed is slow when the button is pressed at first and becomes faster if the button is pressed and held continuously.

⓫ Play button (▶ play)

⓬ Pause button (❚❚ pause)

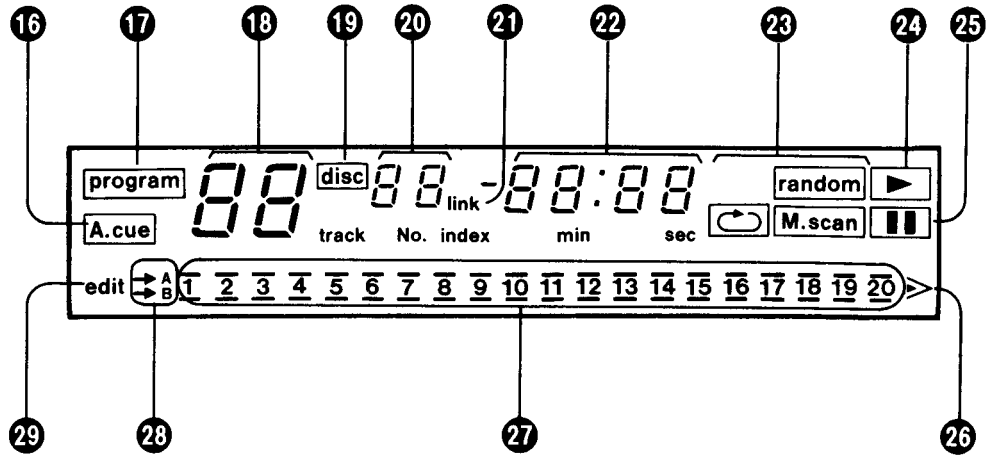
⓭ Stop button (■ stop)

This button can be used to stop disc play, as well as to cancel the various play modes.

⓮ Skip buttons (|◀◀ skip/skip ▶▶|)

These buttons can be used to specify the number of the desired track and the desired recording time of the tape.

⓯ Disc holder open/close button (▲ open/close)



Indicators section

⑯ **Auto cue indicator (A. cue)**

⑰ **Programmed-play indicator (program)**

⑱ **Track number display (track)**

⑲ **Disc indicator (disc)**

⑳ **Index/program number display (index/No.)**

㉑ **Disc link indicator (link)**

㉒ **Time display (min/sec)**

㉓ **Operation indicators**

The following indicators light during their respective operations.

random : Random play
: Repeat play
M. scan : Music scan

㉔ **Play indicator (▶)**

㉕ **Pause indicator (❚❚)**

㉖ **"Over" mark (>)**

This indicator lights if the total number of tracks on the disc is 21 or more.

㉗ **Track number indicator (1–20)**

㉘ **Tape side indicator (A/B)**

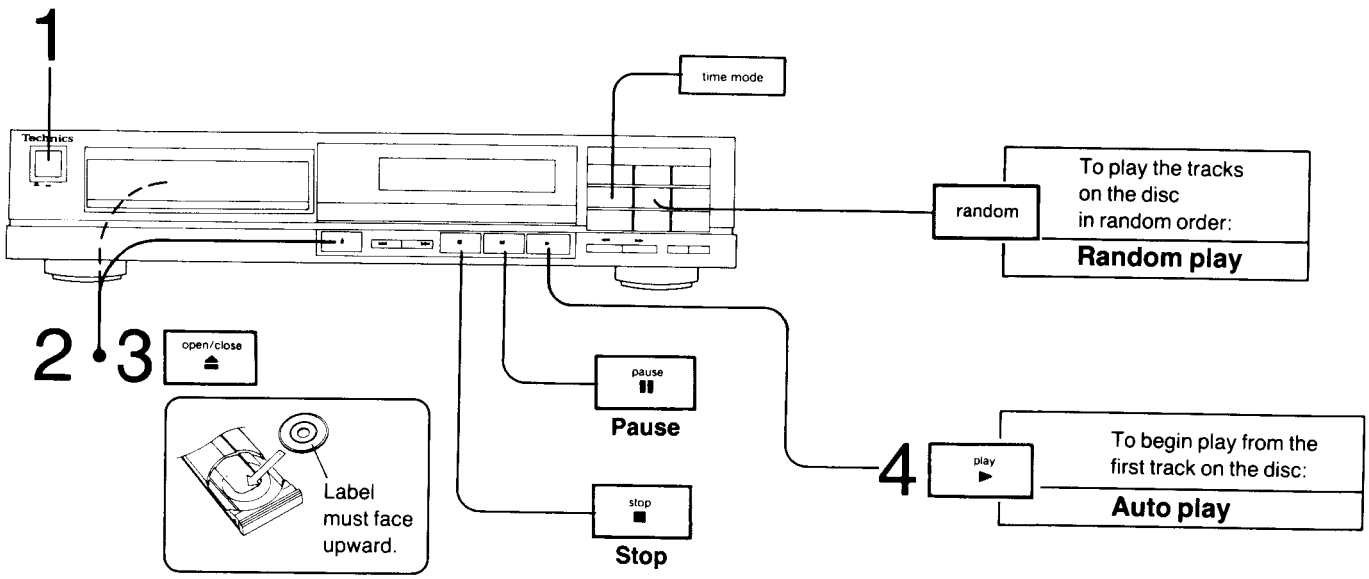
㉙ **Compact disc edit indicator (edit)**

This unit can be operated by using remote control transmitters included with Technics receivers, etc. Face the remote control transmitter toward the control section of the unit.

Note:
Even though the play button of the remote control transmitter to be used is equipped with the pause function, only the play function is available for the unit.

■ BASIC OPERATION

Has the lock shaft been released?



Auto play

Playing an entire disc from the first track to the last.

Basic operations such as turning the power ON and OFF are the same for the other play modes as well.

1 Press the power switch to turn power ON.

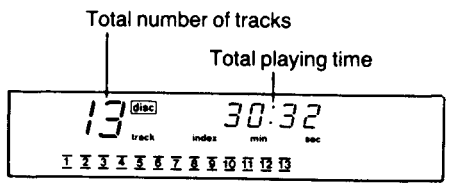
Turn down your amplifier volume first. If, inadvertently, the volume is set too loud, damage to your speakers could result.

Auto-start function
If a disc has already been loaded into the disc holder, play will begin right away when the power is turned ON. This is for timer play.

2 Press the open/close button to open the disc holder and insert a disc.

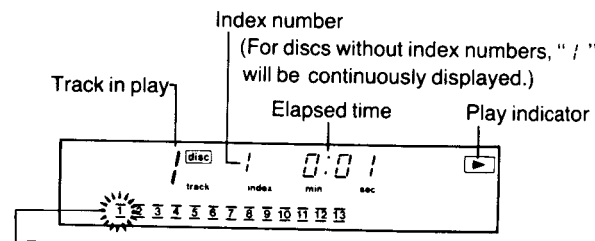
3 Press the open/close button again to close the disc holder.

The total number of tracks on the disc and the total playing time are displayed.



4 Press the play button.

Disc play begins from the first track on the disc.



•The bars above and below the number of the track in play flash. They go out when play finishes.

- The unit stops automatically when the last track on the disc finishes playing. (The display returns to the total number of tracks and total playing time indications.)
- Switch power OFF when finished.

•To stop disc play, press the stop button.

The unit switches to the stop mode and the total number of tracks and total playing time are displayed.

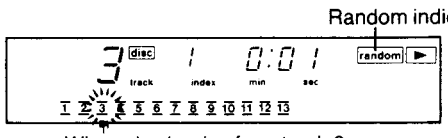
Notes:

- Attempting to change discs while the disc holder is in the process of opening can scratch or damage your discs.
- The total playing time displayed includes the silent sections between tracks. For this reason, it may differ by a few seconds from the playing time printed in the disc's liner notes.

Random play

All the tracks on the disc are played in a new, randomly selected order. The order is different every time. Listening to tracks in a different order can be a refreshing change of pace.

Press the random play button.



When play begins from track 3
(The bars above and below the number of the track in play flash. They go out when play finishes.)

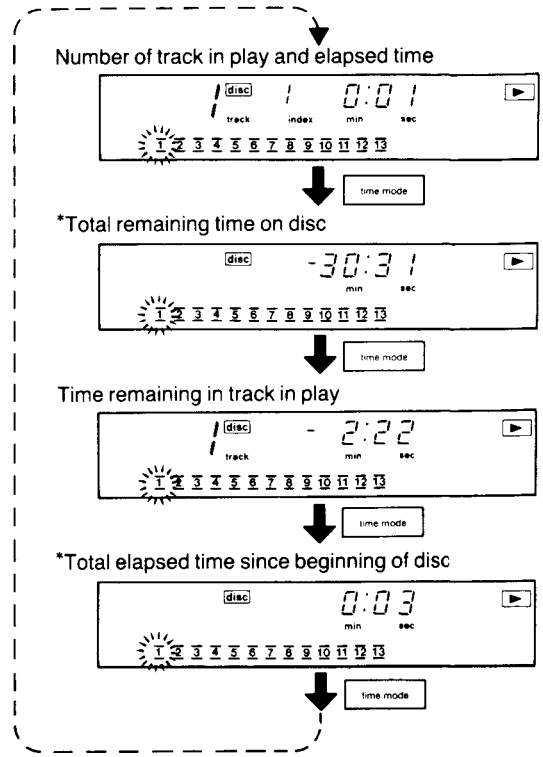
- The unit stops automatically when all tracks on the disc finish playing.

•To cancel random play while a disc is playing, press the random play button again.

When the track in play finishes playing, play continues from subsequent tracks in the normal order until the end of the disc is reached.

To change the indications of the time mode display

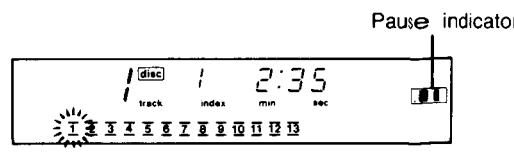
Each time the time mode select button is pressed during play or when the unit is in the pause mode switches the display among the following modes.


Number of track in play and elapsed time
time mode
*Total remaining time on disc
time mode
Time remaining in track in play
time mode
*Total elapsed time since beginning of disc
time mode

*not displayed during random play

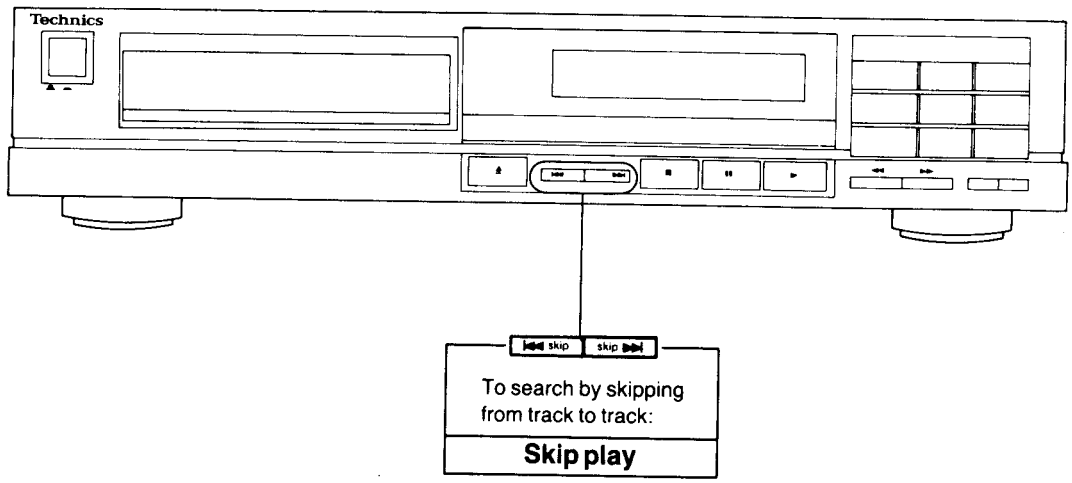
To temporarily stop disc play

Press the pause button.



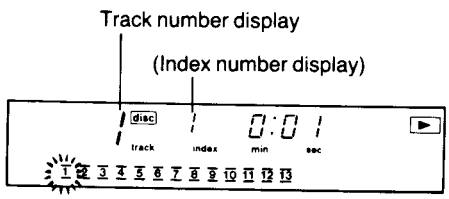
- Press the play button to play again.

■ SEARCH FUNCTIONS



Skip play

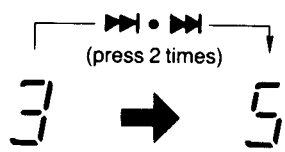
This function allows you to skip to the beginnings of tracks preceding or following the track in play and begins play immediately. It is a good idea to keep an eye on the track number display when using this function.



•To skip forward, press ▶▶| button.

The unit skips ahead one track each time the button is pressed.

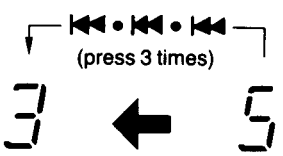
For example, to skip from track 3 to track 5:



•To skip backward, press |◀◀ button.

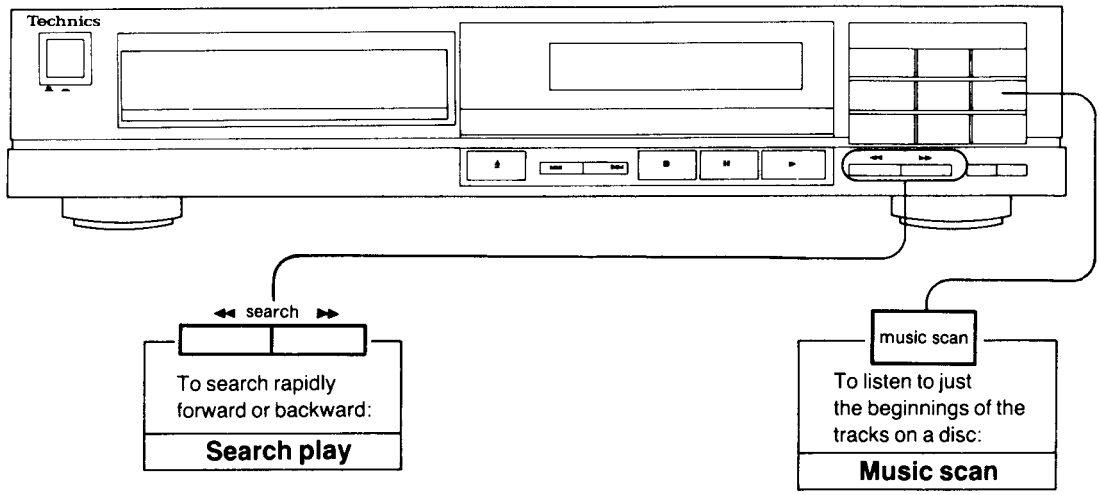
The first time the button is pressed, the unit skips back to the beginning of the track in play. Then it skips back one track for each additional press.

For example, to skip from track 5 to track 3 during play:



Helpful Hints:

- You can skip tracks when the unit is in the stop mode. Play begins automatically from the selected track and continues to the last track on the disc. The unit stops automatically when the last track on the disc finishes playing.
- You can also skip tracks when the unit is in the pause mode. The unit skips to the track selected and remains in the pause mode.


Technics
◀◀ search ▶▶
To search rapidly forward or backward:
Search play
music scan
To listen to just the beginnings of the tracks on a disc:
Music scan

Search play

This function allows you to search rapidly forward or backward on the disc for specific sections.

•To search forward, press ▶▶ button.
The unit begins searching in a forward direction.

•To search backward, press ◀◀ button.
The unit begins searching in a reverse direction.

The search speed is slow when the button is pressed at first and becomes faster if you keep it pressed down. Release the button when you reach the desired point on the disc.

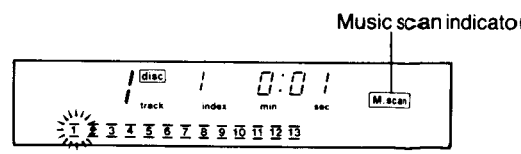
■ Using search function in the pause mode

When the search button is released, the unit returns to the pause mode.

Music scan

This function plays only the first 15 seconds of each track on the disc.
It is useful for locating tracks in a disc when you are not sure of the contents of tracks.

Press the music scan button.
Music scan begins with playing the first 15 seconds of track 1.



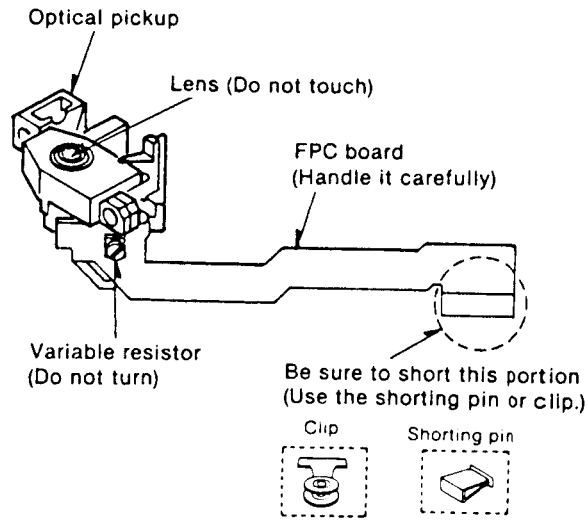
•Once the beginning sections of all the tracks on the disc have finished playing, music scan is canceled and normal play begins from track 1.

■ HANDLING PRECAUTIONS FOR OPTICAL PICKUP

The laser diode in the optical pickup may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the optical pickup.

• Handling of optical pickup

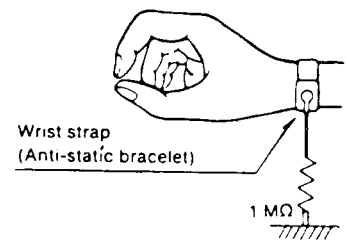
1. Do not give excessive shock to the optical pickup because it is of extremely precise structure.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board. (FPC board)
   When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board. (FPC board)
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

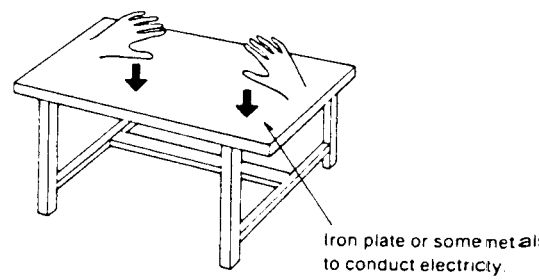


• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to relieve the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the optical pickup.



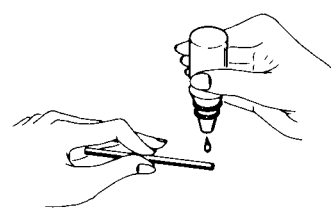


■ INSTRUCTIONS FOR TRAVERSE OIL (Part No. SZZ0L31)

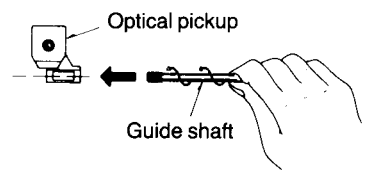
The container contains 6 g (approx. 3 ml) of oil, and one application (one shaft) requires 0.05 ml of oil.

How to Use

(1) Remove the guide shaft in the traverse deck from the optical pickup, and clean off any dust from the guide shaft.
(2) Apply one drop of the SZZ0L31 to the tip of the guide shaft.
(3) Hold the guide shaft so that its oiled end touches the optical pickup and insert it into the bearing while rotating it slowly.
(4) After securing the guide shaft, move the optical pickup by hand several times to the left and right to distribute the oil on the guide shaft.



図(1)

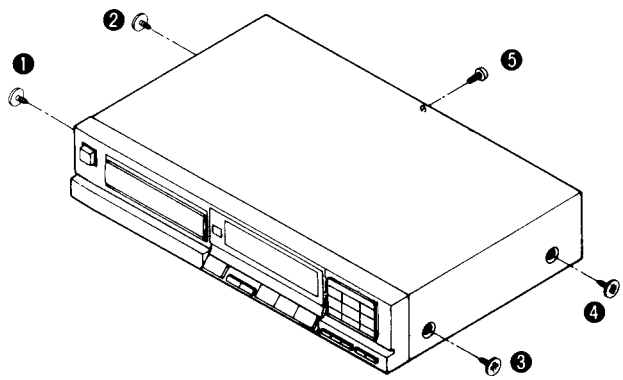


■ DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diodes. Refer to caution statements on page 3.

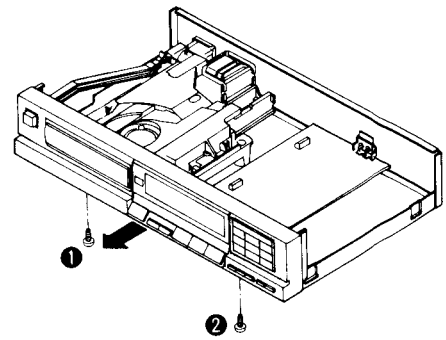
ACHTUNG:
- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No. 1	Removal of the cabinet
Procedure 1	



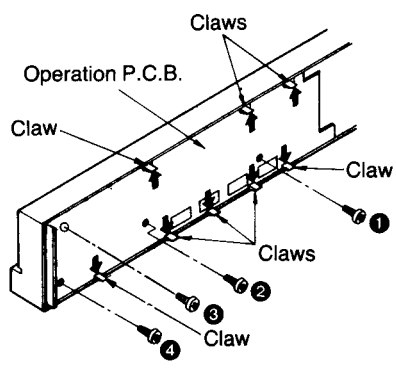
●Remove the 5 screws (❶~❺).

Ref. No. 2	Removal of the front panel
Procedure 1→2	



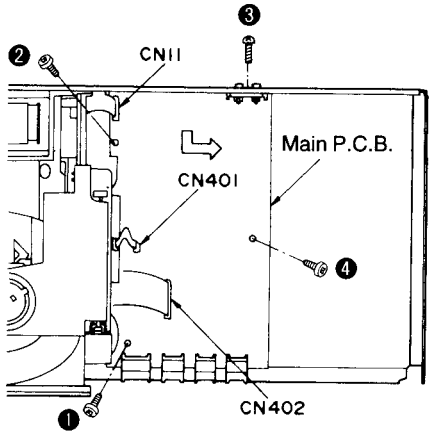
1. Remove the 2 screws (❶, ❷).
2. Remove the front panel in the direction of the arrow.

Ref. No. 3	Removal of the operation P.C.B.
Procedure 1→2→3	



1. Remove the 4 screws (❶~❹).
2. Release the 8 claws in the direction of the arrows and remove the operation P.C.B.

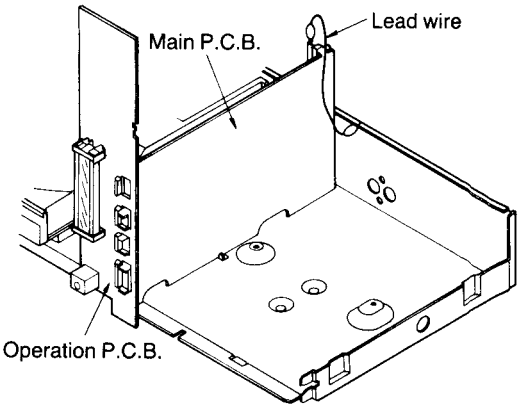
Ref. No. 4	Removal of the main P.C.B.
Procedure 1→2→3→4	



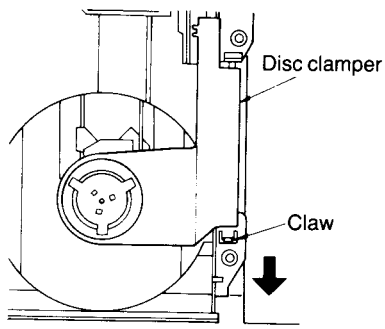
1. Remove the 4 screws (❶~❹).
2. Lift the main P.C.B. off the retention posts on the chassis.
3. Remove the main P.C.B. in the direction of the arrow.

How to check the main P.C.B.

- When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown.
  1. Connect the main P.C.B. ground terminal (LINE OUT terminal) to the chassis with a lead wire.
  2. Connect the loading base grounding terminal to the chassis with a lead wire.
  3. Connect the operation P.C.B. ground terminal to the chassis with a lead wire.

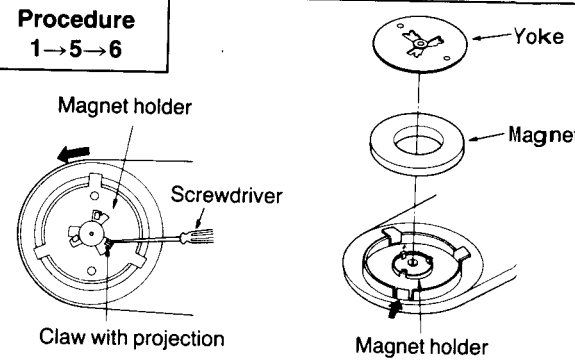


Ref. No. 5	Removal of the disc clamper
Procedure 1→5	



- Push the claw in the direction of the arrow and remove the disc clamper.

Ref. No. 6	Removal of the magnet and holder
Procedure 1→5→6	

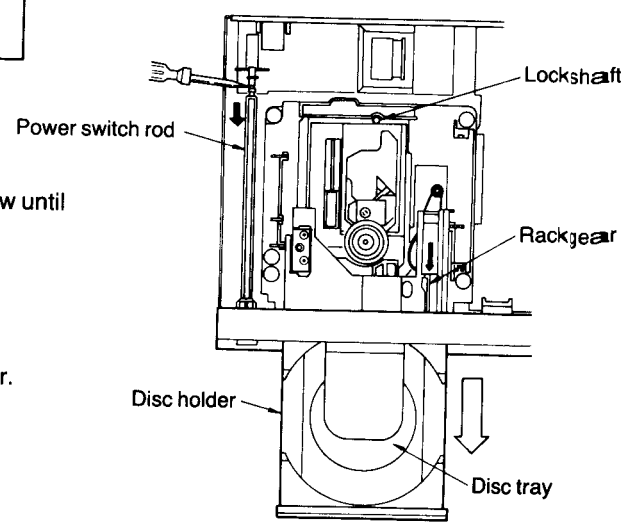


1. While lifting the claw with a screwdriver, rotate magnet holder in the direction of the arrow and remove the yoke and magnet.
2. Release the claws of the magnet holder.

Ref. No. 7	Removal of the disc holder and power switch rod
Procedure 1→5→7	

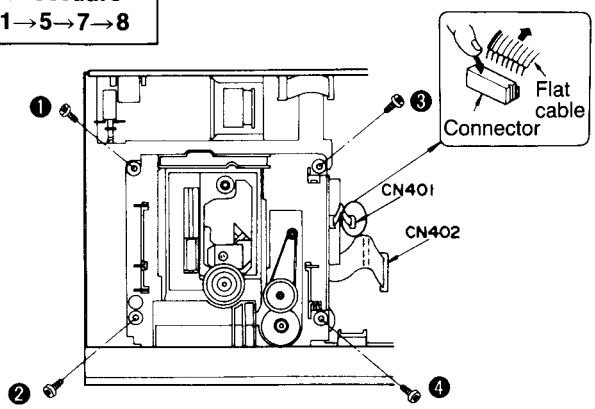
- **Removal of the disc holder**
  1. Push the rack gear slowly in the direction of the arrow until the disc tray comes up.
  2. Pull out the disc holder further to remove it.

  Note: Make sure to release the lock shaft.
- **Removal of the power switch rod.**
  1. Set the power switch to the "OFF" position.
  2. Remove the power switch rod by using a screwdriver.



Ref. No. 8	Removal of the loading base

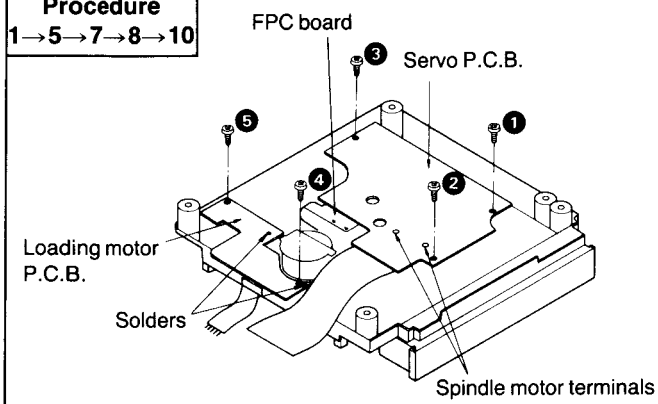
Procedure
1→5→7→8



1. Remove the 4 screws (❶~❹).
2. Remove the 2 flat cables (CN401. CN402).

Ref. No. 10	Removal of the servo P.C.B. and loading motor P.C.B.

Procedure
1→5→7→8→10



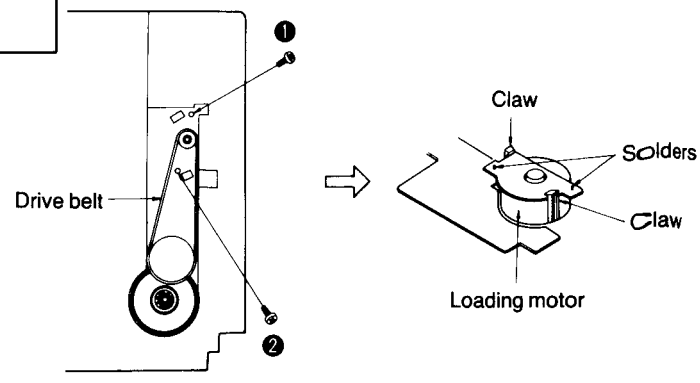
- **Removal of the servo P.C.B.**
  1. Remove the 3 screws (❶~❸).
  2. Unsolder the 2 terminals of spindle motor.
  3. Remove the FPC board from the optical pickup.

  Caution: To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.
- **Removal of the loading motor P.C.B.**
  1. Remove the 2 screws (❹, ❺).
  2. Unsolder the 2 terminals of loading motor.

Ref. No. 11	Removal of the loading motor

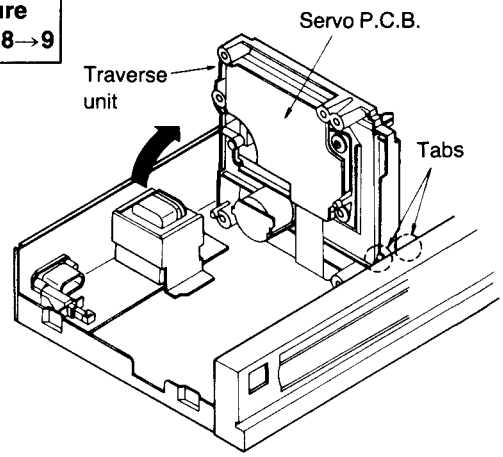
Procedure
1→5→7→8→11

1. Remove the drive belt.
2. Remove the 2 screws (❶, ❷).
3. Release the 2 claws.
4. Unsolder the 2 terminals of the lead wire of the loading motor.



Ref. No. 9	How to check the servo P.C.B.

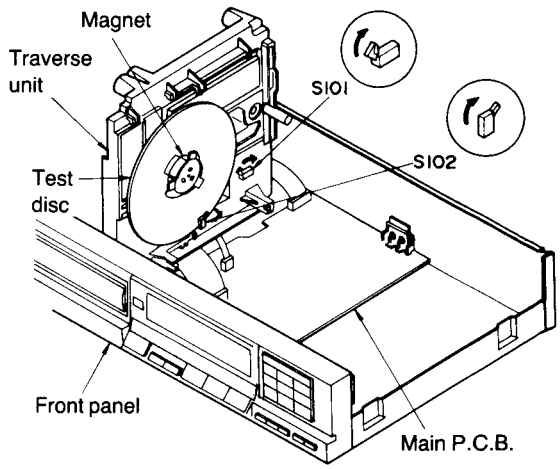
Procedure
1→5→7→8→9



- When checking the soldered surfaces of the servo P.C.B. and replacing the parts, do as shown.
- Flat cables (CN401 and CN402) should be left connected.

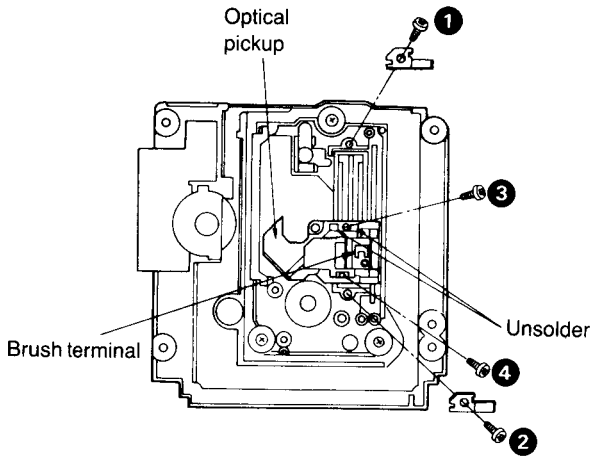
To play a disc

1. Place the test disc and magnet.
2. Switch the player on.
3. First push the Open/Close switch S102 in the direction of the arrow and then, within 4 seconds, push switch S101 in the direction of the arrow as shown in the figure.



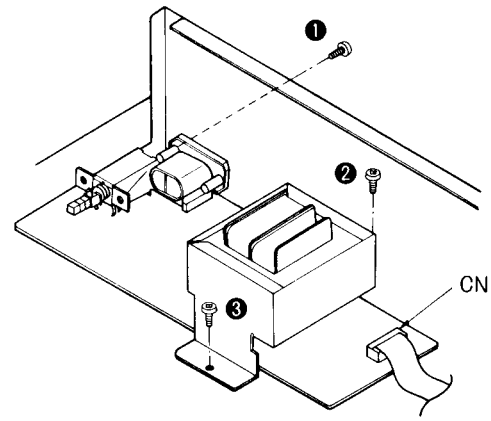
Ref. No. 12	Removal of the optical pickup
Procedure 1→5→7→8→ 10→12	Refer to the handling precautions for optical pickup and instructions for traverse oil (See page 10).

1. Remove the 2 screws (❶, ❷).
2. Unsolder the 2 terminals and the 2 screws (❸, ❹).



Caution: Take care not to touch the brush terminal.

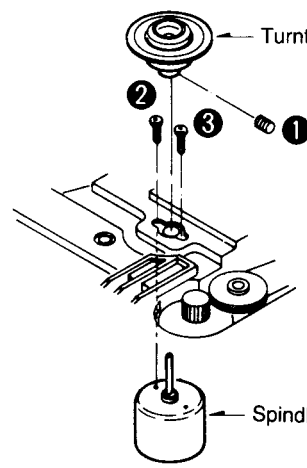
Ref. No. 13	Removal of the power supply P.C.B.
Procedure 1→5→7→13	



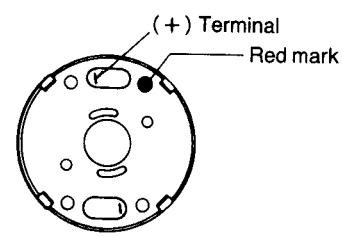
1. Remove the 3 screws (❶~❸).
2. Remove the flat cable (CN1).

Ref. No. 14	Removal of the spindle motor
Procedure 1→5→7→8→ 10→14	

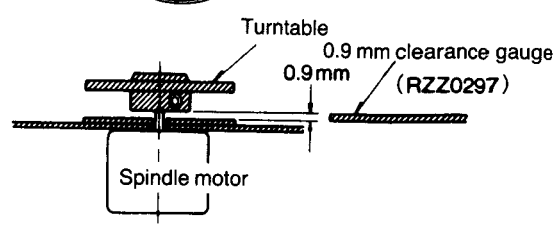
1. Loosen the screw (❶) by using a 1.27 mm allen wrench and remove the turntable.
2. Remove the 2 screws (❷, ❸).



Caution:
1. Turntable height adjustment is necessary any time the turntable or spindle motor is replaced.
2. The (+) terminal of the spindle motor is indicated by the red mark.



Adjustment of turntable height
1. Insert a 0.9 mm clearance gauge (RZZ0297) between the turntable and loading base as shown in the figure.
2. Tighten the turntable set-screw by using a 1.27 mm allen wrench.



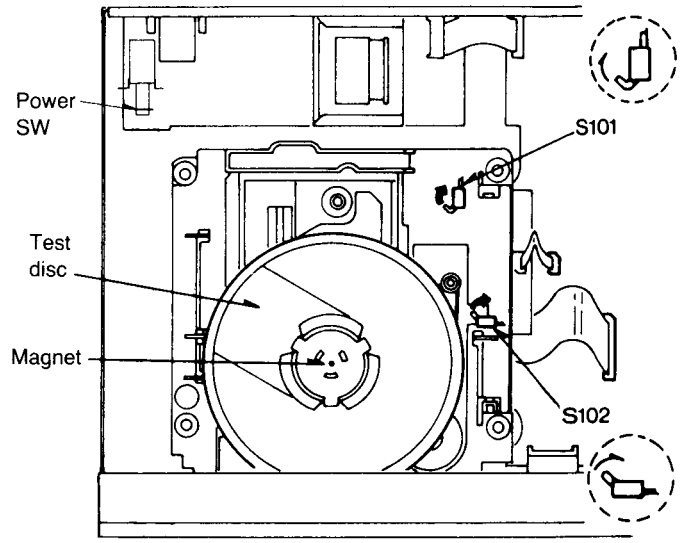
Caution:
Refer to turntable height adjustment (See page 16).

■ MEASUREMENTS AND ADJUSTMENTS

Caution:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
  With the unit turned "on", laser radiation is emitted from the pickup lens.
  Avoid exposure to the laser beam, especially when performing adjustments.

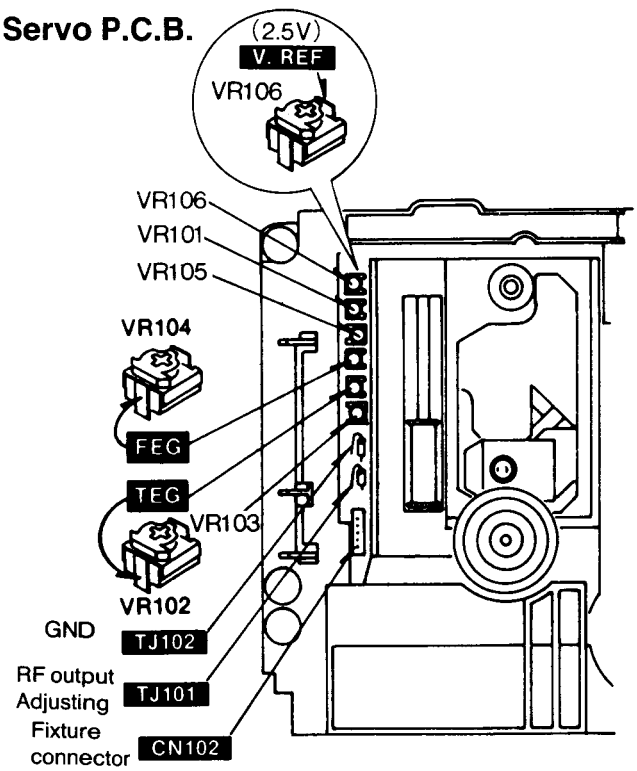
PREPARATION

1. Remove the cabinet (see Ref. No. 1 in disassembry instructions).
2. Remove the disc clamper and magnet (see Ref. No. 6 of the same).
3. Remove the disc holder and power switch rod (see Ref. No. 7 of the same).
4. Place the test disc and magnet on the turntable.
5. Switch the player on.
6. First push the Open/Close switch S102 in the direction of the arrow, and then, within 4 seconds, push switch S101 in the direction of the arrow as shown in the figure.

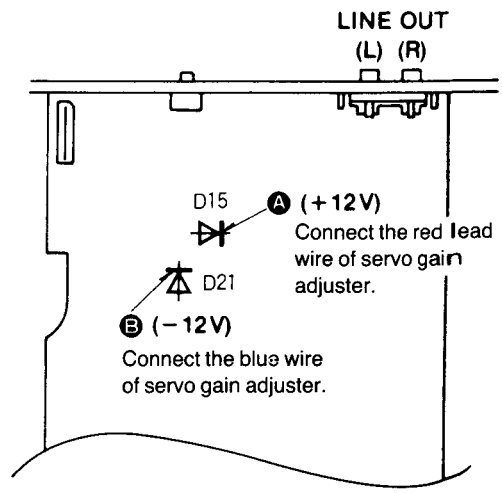


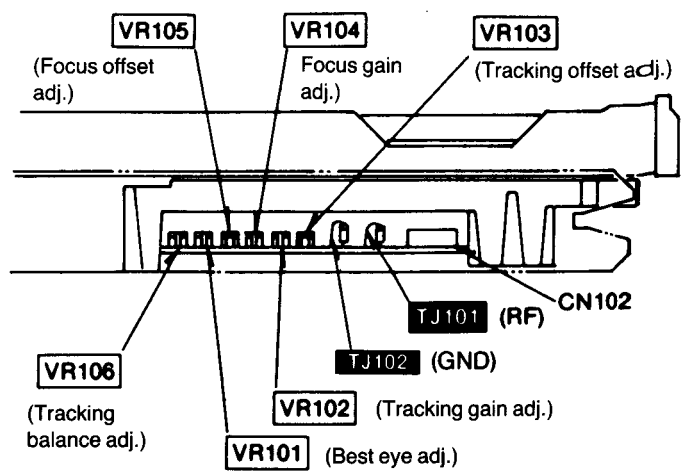
ADJUSTMENT POINTS

•Servo P.C.B.

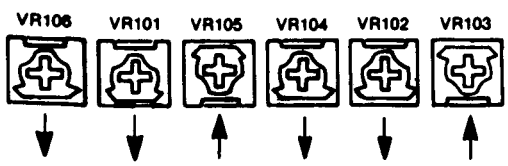


•Main P.C.B.





•Temporary setting of each VR



(Temporary VR setting if any of the trimmer VRs are replaced or require readjustment, temporarily set them to the following positions.)

Measuring Instruments and Special Tools

- Servo gain adjuster (SZZP1017F or SZZP1094C)
- Test discs
  1. Playability test disc (SZZP1054C or SZZP1014F)
  2. Uneven test disc (SZZP1056C)
  3. Black band test disc (SZZP1057C)
- Normal disc
- Dual-beam oscilloscope with bandwidth of 30 MHz or better (with EXT trigger and 1:1 probe).
- Audio frequency (AF) oscillator
- Conversion connector (SZZP1032F)
- Allen wrench (M2.0)
- Allen wrench (M1.27)
- 0.9 mm clearance gauge (RZZ0297)

As to the replacement of the following parts, refer to the specified sections for adjustment.

(1) Spindle motor ..... Sections (1), (3) to (8)
(2) Turntable ..... Sections (1), (3) to (8)
(3) Optical pickup ..... Sections (2) to (8)

Adjusting Procedure

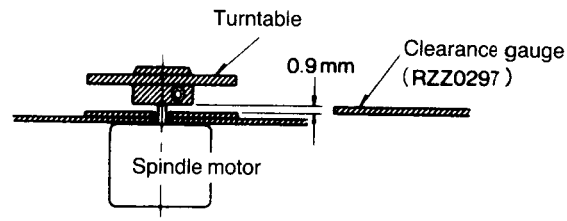
- If you have replaced the spindle motor or turntable, perform the following adjustment:

(1) TURNTABLE HEIGHT ADJUSTMENT

1. Insert the 0.9 mm elearance gauge (RZZ0297) between the turntable and the loading base (see the figure at right).
2. Tighten the turntable retention screw with the 1.27 mm allen wrench.
3. Connect the oscilloscope's CH. 1 probe across VR104's **FEG** (+) and VR106's **V. REF** (−) terminals via a filter.
   (Note: A voltage of 2.5 V appears at the V. REF terminal. Take care not to short the player's chassis to the oscil loscope ground.)
   Oscilloscope setting:
   VOLT ..... 50 mV
   SWEEP ..... 1 ms.
   Input coupling ..... DC
4. Adjust oscilloscope's DC zero balance.
5. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
6. Measure the DC level displayed on the oscilloscope.

Note 1. If the measured amplitude is within a range of +/− 15 mV, the turntable height is correct. If it is outside this range, adjust the turntable height by using the clearance gauge as a pry.

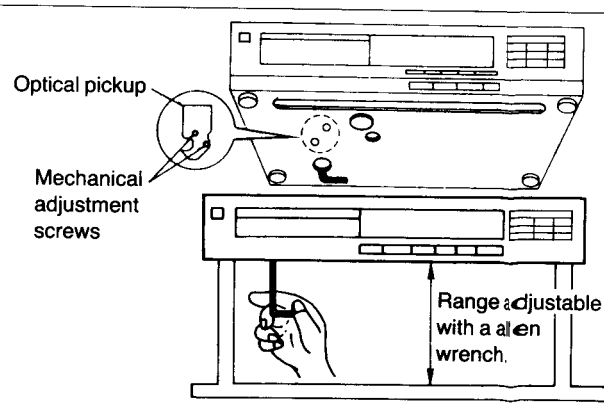
If the amplitude exceeds +15 mV, lower turntable.
If the amplitude is below −15 mV, elevate the turntable.

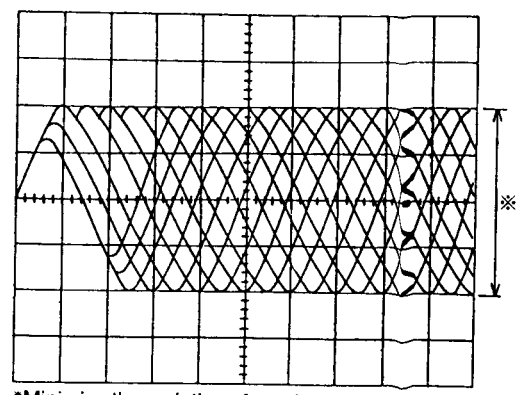


Note 2. If the measured amplitude greatly surpasses or falls short of the range above, set **VR105** at or around the center, then try to adjust the height again. (Then be sure to adjust the focus offset as well.)

(2) MECHANICAL ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (−) on the Servo P.C.B.
   Oscilloscope setting:
   VOLT ..... 100 mV
   SWEEP ..... 0.5 µs.
   Input coupling ..... AC
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench until the RF signal amplitude variation on the oscilloscope is minimized.
5. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZOL01).

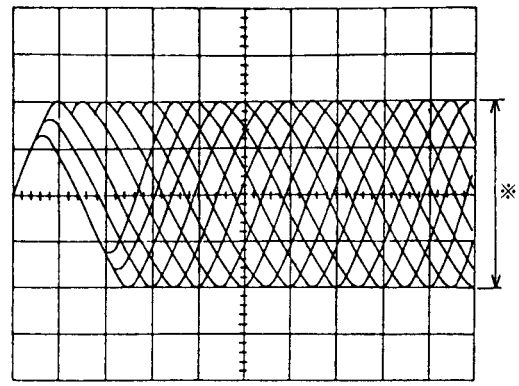




*Minimize the variation of amplitude.

(3) BEST EYE (PD BALANCE) ADJUSTMENT

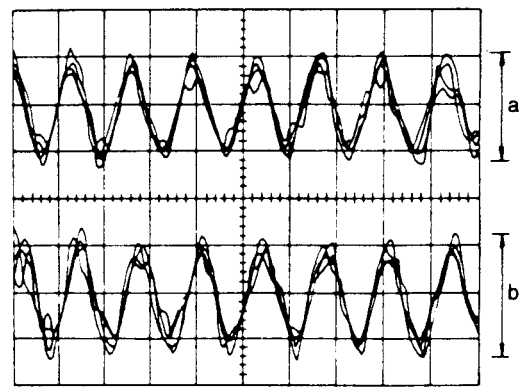
1. Connect the oscilloscope's CH. 1 probe across TJ101 (+) and TJ102 (−) on the Servo P.C.B.
   Oscilloscope setting:
   VOLT ..... 200 mV
   SWEEP ..... 0.5 µs.
   Input coupling ..... AC
2. Switch the player power **ON**, and play the 0.5 mm black dot on the test disc (SZZP1014F or SZZP1054C).
3. Adjust **VR101** until the RF signal eye pattern amplitude is maximized.



*Maximize the amplitude.

(4) FOCUS GAIN ADJUSTMENT

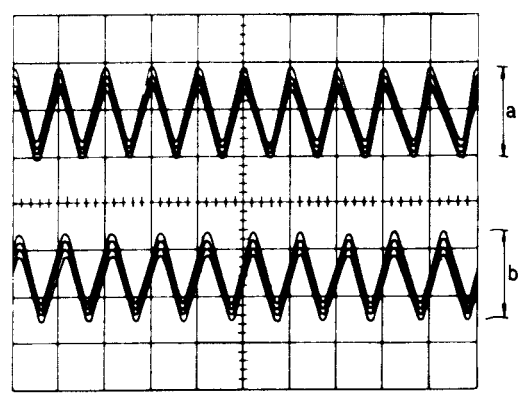
1. Connect the servo gain adjuster to the player (see page **19**).
2. Set the servo gain adjuster's gain switch to position **"2"** and the ON/OFF switch to **ON**.
3. Set up the AF oscillator output for **825 Hz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
4. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively
   (TP3 is GND).
   Oscilloscope setting:
   VOLT ..... 100 mV (both channels)
   SWEEP ..... 1 msec.
   Input coupling ..... AC
5. Play the test disc (SZZP1014F or SZZP1054C).
6. Set the servo gain adjuster's gain switch to position **"3"**, and you will see a 825 Hz signal on the oscilloscope. Adjust **VR104** until the signal amplitudes on both channels become identical to each other.
7. Set the gain switch back to position **"2"**.



*Adjust **VR104** until a equals b.

(5) TRACKING GAIN ADJUSTMENT

1. Set up the AF oscillator output for **1.1 kHz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
2. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively
   (TP3 is GND).
   Oscilloscope setting:
   VOLT ..... 100 mV (both channels)
   SWEEP ..... 1 msec.
   Input coupling ..... AC
3. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
4. Set the servo gain adjuster's gain switch to position **"1"**, and you will see a 1.1 kHz signal on the oscilloscope. Adjust **VR102** until the signal amplitudes on both channels become identical to each other.
5. Set the gain switch back to position **"2"**.

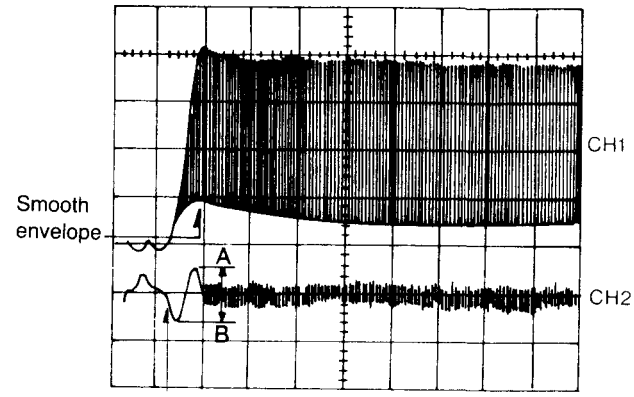


*Adjust **VR102** until a equals b.

(6) FOCUS OFFSET ADJUSTMENT

Note: Make sure that the servo gain adjuster's gain switch is set to position "**2**".

1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (−) on the Servo P.C.B. and its CH. 2 probe (+) to VR104's **FEG** terminal.
   Oscilloscope setting:
   VOLT ..... 100 mV (CH. 1)
   100 mV (CH. 2)
   SWEEP ..... 0.5 ms.
   Input coupling ..... AC (both CH. 1 and 2)
   Trigger mode ..... NORM (trigger CH. 1)
2. Switch the player power **ON**, and play the **9** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR105** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH.2 is minimized, i.e. when amplitude A equals amplitude B.

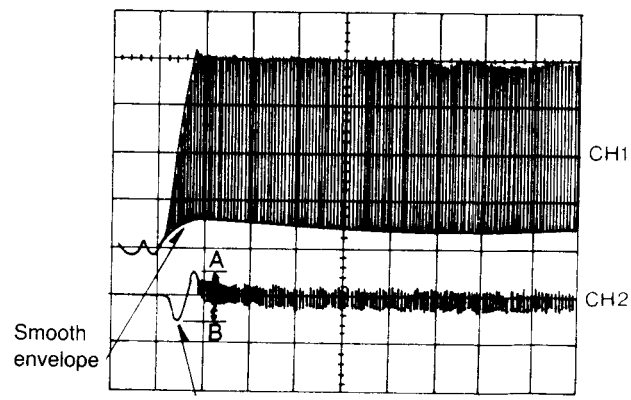


Minimize the amplitude on make A=B.

(7) TRACKING OF OFFSET ADJUSTMENT

Note: Make sure that the servo gain adjuster's gain switch is set to position "**2**".

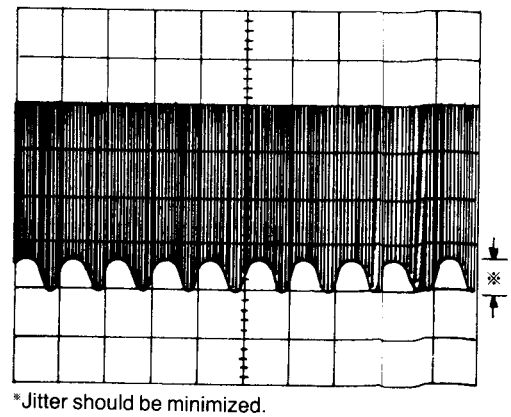
1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (−) on the Servo P.C.B. and its CH. 2 probe (+) to VR102's **TEG** terminal.
   Oscilloscope setting:
   VOLT ..... 100 mV (CH. 1)
   200 mV (CH. 2)
   SWEEP ..... 0.5 ms.
   Input coupling ..... AC (both CH. 1 and 2)
   Trigger mode ..... NORM (trigger CH. 1.)
2. Switch the player power **ON**, and play rack **9** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR103** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.



Minimize the amplitude on make A=B.

(8) TRACKING BALANCE ADJUSTMENT

1. Make sure that servo gain adjuster's gain switch is set to position "**2**".
2. Set up the AF oscillator output for **1.1 kHz, 600 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
3. Connect oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (−) on the Servo P.C.B. and CH. 2 probe (+) to the OSC terminal on the servo gain adjuster.
   Oscilloscope setting:
   VOLT ..... 100 mV (CH. 1)
   SWEEP ..... 0.5 msec.
   Input coupling ..... AC (both CH. 1 and 2)
   Trigger mode ..... NORM (trigger CH. 2)
4. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
5. Set the servo gain adjuster's gain switch to position "**1**", and adjust **VR106** until the jitter contained in the signal waveform on CH. 1 is minimized as shown below.
6. Disconnect the servo gain adjuster's leads from the player.



*Jitter should be minimized.

(9) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

***Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

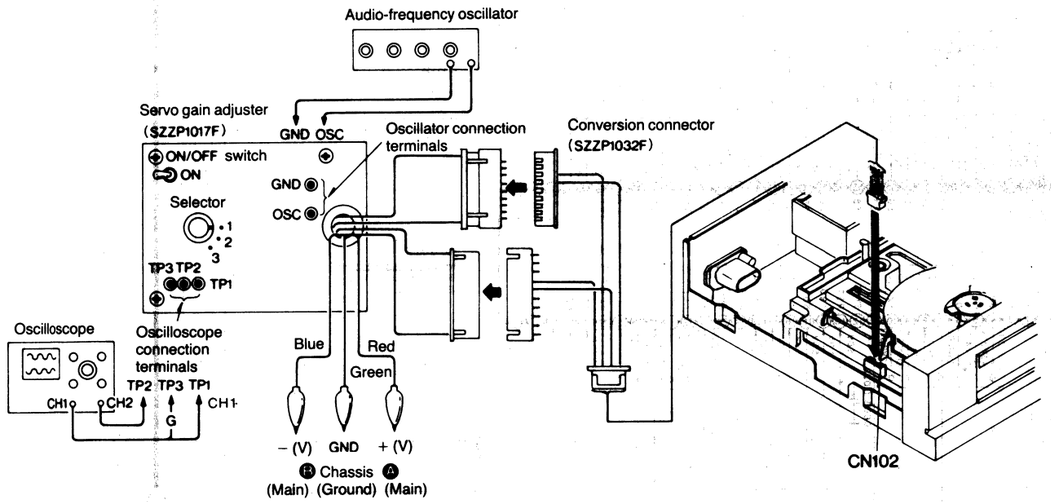
***Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

***Checking Using Defect Disc**

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

•Connection of servo gain adjuster



■ NEW SERVO GAIN ADJUSTER (Servo Amp. Adjusting Fixture)

The following introduces the improved version of the current servo gain adjuster (SZZP1017F).

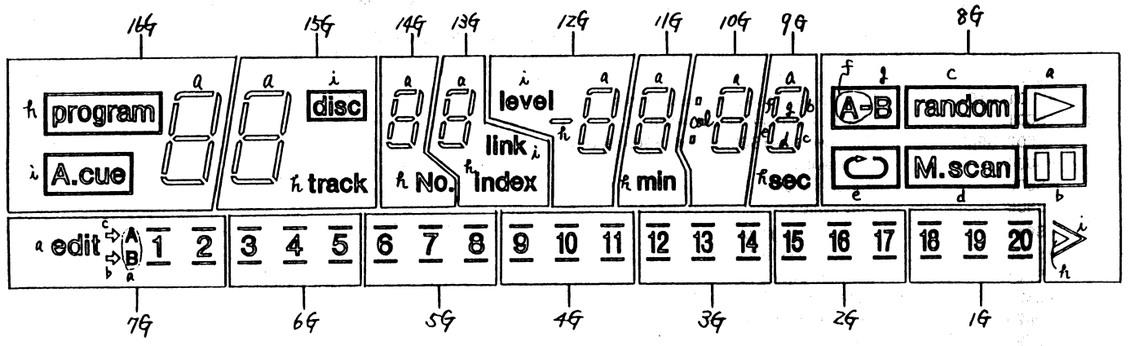
Part number: SZZP1094C

Features:

(1) Contains all oscillation frequencies and output adjustments needed for focus servo gain, tracking servo gain, and tracking balance adjustment (requires no external oscillator).
(2) Panel indicators indicate the best points of focus and tracking servo gains (no oscilloscope needed).
(3) Internal power supply eliminates the need for power supply from the CD player.

■ DESCRIPTION OF FL PANEL

•GRID ASSIGNMENT



•PIN CONNECTION

42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
F2	F2	NP	a	b	c	d	NP	NP	NP	e	f	g	h	i	16G	15G	14G	13G	NP	NP	NP	NP	12G	11G	10G	9G	8G	7G	6G	5G	4G	NP	NP	NP	NP	3G	2G	1G	NP	F1	F1

•ANODE CONNECTION

	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	a	a	a	a	a	a	a	a	▶	edit A/B	3	6	9	12	15	18
b	b	b	b	b	b	b	b	b	❚❚	⇨(L)	3	6	9	12	15	18
c	c	c	c	c	c	c	c	c	random	⇨(H)	3	6	9	12	15	18
d	d	d	d	d	d	d	d	d	M.scan	1	4	7	10	13	16	19
e	e	e	e	e	e	e	e	e	↻	(L) 1	4	7	10	13	16	19
f	f	f	f	f	f	f	f	f	A–	(H) 1	4	7	10	13	16	19
g	g	g	g	g	g	g	g	g	B	2	5	8	11	14	17	20
h	program	track	No.	index	—	min	col	sec	▶	(L) 2	5	8	11	14	17	20
i	A.cue	disc	-	link	level	-	-	-	>	(H) 2	5	8	11	14	17	20

■ SCHEMATIC DIAGRAM (Parts list on page 45～47)

(This schematic diagram may be modified at any time with the development of new technology.)

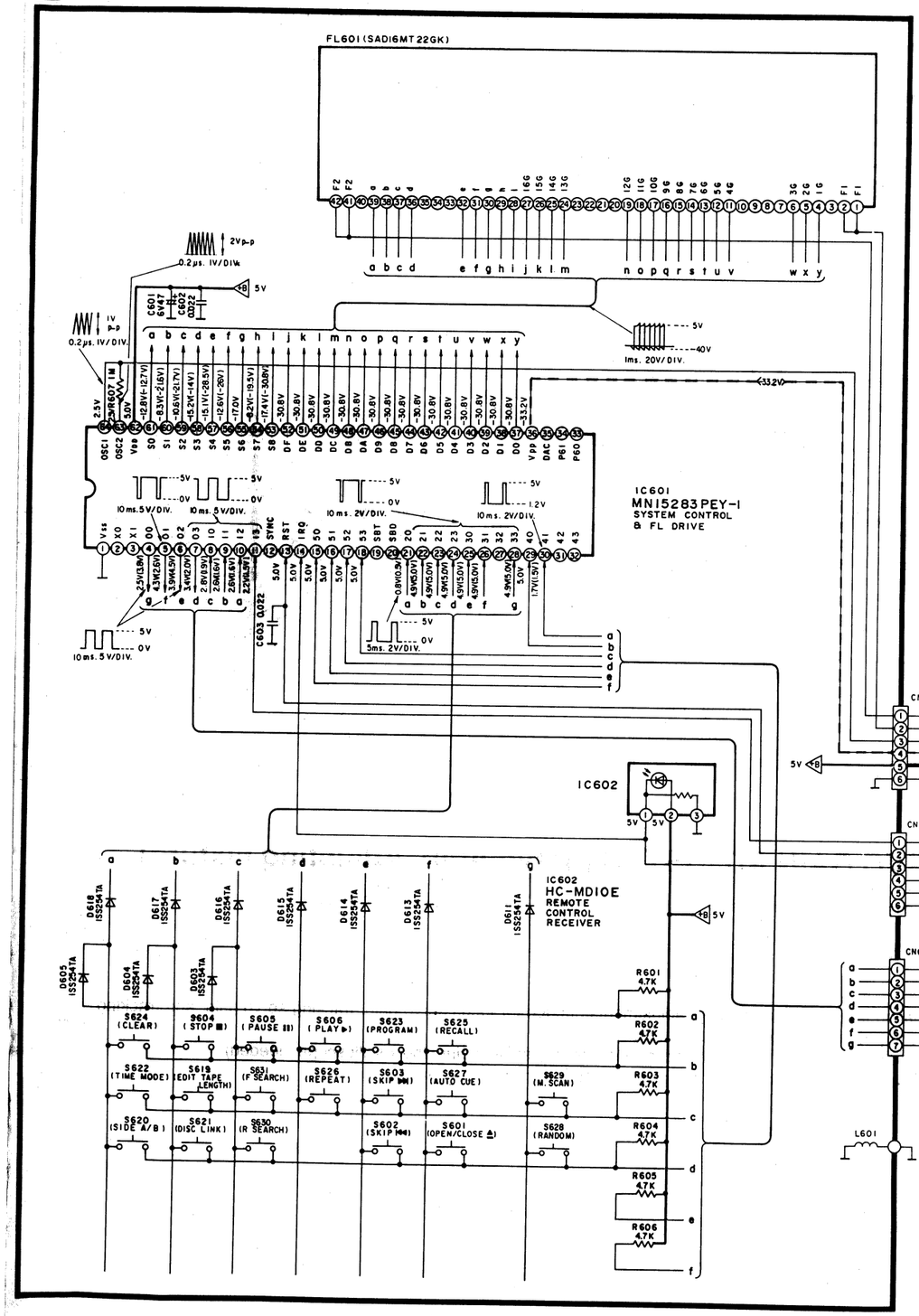
- **S1:** Power switch
- **S101, S102:** Disc holder open/close detection switches
- **S601:** Disc holder open/close switch
- **S602, S603:** Skip switches (**S602; |◀◀, S603; ▶▶|**)
- **S604:** Stop switch
- **S605:** Pause switch
- **S606:** Play switch
- **S619:** Edit tape length switch
- **S620:** Tape-side select switch
- **S621:** Disk link switch
- **S622:** Time mode select switch
- **S623:** Programmed-play switch
- **S624:** Clear switch
- **S625:** Recall switch
- **S626:** Repeat switch
- **S627:** Auto cue switch
- **S628:** Random play switch
- **S629:** Music scan switch
- **S630, S631;** Search switches (**S630: ◀◀, S631: ▶▶**)

- The voltage value and waveform are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the taster or the measuring unit.
  *The parenthesized are the values of voltage generated during playing (Test disc 1 kHz, L+R, 0 dB), others are voltage values in stop mode.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

—≺ ≻— : Positive voltage lines. --≺ ≻--: Negative voltage lines. ⋯⋯ : Audio signal lines.

***Caution!**
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
*Cover the parts boxes made of plastics with aluminum foil.
*Ground the soldering iron.
*Put a conductive mat on the work table.
*Do not touch the legs of IC or LSI with the fingers directly.

A OPERATION CIRCUIT



15 16 17 18 19 20 21 22 23 24 25 26 27

B SERVO CIRCUIT

Note: Original circuit uses AN8377 for IC103 While the new circuit uses AN8377N for IC103. (Refer to the table below for other changes)

IC103 Modification	AN8377	AN8377N
IC104	LM2840T5M	Removed
Q102	Removed	2SB1240OH Added
C140	0.01µF	Removed
C145	6V 100µF	Removed
Jumper SJ101	Removed	Shorted

OPTICAL PICKUP

OPTICAL PICKUP

SPEED POSITION SENSOR

(TRAVERSE)

(FOCUS) (TRACKING)

CN101

Audio signal lines

Q101
2SA1547
AUTO POWER CONTROL

IC103
AN8377
FOCUS/TRACKING /TRAVERSE COIL DRIVE (BTL DRIVE)

IC104
LM2940T5M
REGULATOR

Q102
2SB1240
SWITCHING

IC102
AN8374S
SERVO PROCESSOR

IC101
AN8373S
SERVO AMP

Tracking offset adj

Best eye adj

Tracking balance adj

Focus offset adj

Focus gain adj

Tracking gain adj

TEG

FEG

To servo Gain Adjuster

DC SPINDLE MOTOR

CN103

CN102

MOTOR/ SWITCH CIRCUIT

LOADING MOTOR

(OPEN/ CLOSE DETECTOR)

CN701

D MAIN CIRCUIT

CN401

CN402

Q401
2SD1862QRTV3
MOTOR DRIVE

Q402
2SB1240QRTV6
MOTOR DRIVE

IC402(1/2)

Q301
DTC124EST
SWITCHING

TP301

TP302

IC401
MN1554PEZ-I
SYSTEM CONTROL

IC402
BA4558FTI
MOTOR DRIVE

IC301
MN6625
DIGITAL SIGNAL PROCESSING

Q403
2SD1862QRTV3
MOTOR DRIVE

Q404
2SB1240QRTV6
MOTOR DRIVE

Q302
DTA124EST
SWITCHING

CN412

CN413

CN414

IC302

27 28 29 30 31 32 33 34 35 36 37 38 39

E POWER SUPPLY CIRCUIT

IC401 MN1554PEZ-1 SYSTEM CONTROL

IC301 MN6625 DIGITAL SIGNAL PROCESSING

IC302 SVICXK5816M 16K RAM

IC13 BA4558FTI RESET/STABILIZER

IC11 LM2940T5M REGULATOR

Q13 2SD1862QRTV3 REGULATOR

Q11 2SB1240QRTV6 REGULATOR

Q12 2SB1238QSTV3 REGULATOR

Q405 DTC124EST RESET

Q854 DTC124EST SWITCHING CONT.

Q855 DTA124EST SWITCHING CONT.

Q851 DTA124EST MUTING CONT.

Q853 DTA114EST MUTING CONT.

Q852 DTC124EST MUTING CONT.

ICP11 SRUN15T

D15,17,21,22 SVDS5688GT3

D11~14 SVDS5688GT3

IC801 MN6623B DIGITAL FILTER/ D/A CONVERTER

IC803 LM833M BUFFER AMP.

Q801, 802 2SC3311QRSTA SWITCHING (EMPHASIS)

IC804 NJM4560M BUFFER AMP

IC805,806 SVIH8DN2175M LOW PASS FILTER

Q803, 804 2SD1450RSTTA MUTING

IC806

Audio signal lines

LINE OUT

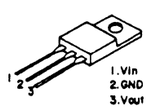
L ch

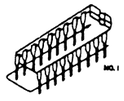
R ch

AC220V (50/60Hz)

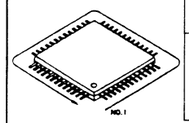
■ TERMINAL GUIDE OF IC's TRANSISTORS AND DIODES

LN2940T5M





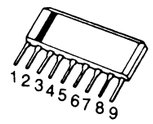
8 pin	BA4558FT1
	LM833M
	NJM4560M
24 pin	SVICXK5816M
64 pin	MN15283PEY-1

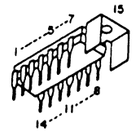


42 pin	MN6623B
64 pin	MN6625
	MN1554PEZ-1

SVIH8DN2175

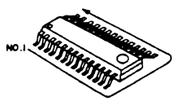
NJM4556SA

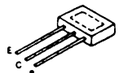




AN8377	16 pin

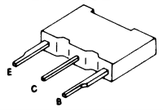
AN8373S
AN8374S



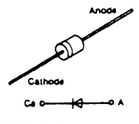


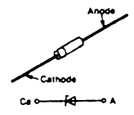
DTC124EST
2SA1309Q
2SC3311A-Q
2SD1450R
DTA124EST
2SA1547QSTV2

2SB1240-P
2SB1238QS
2SD1862-P



MA165
SVDS5688GT3

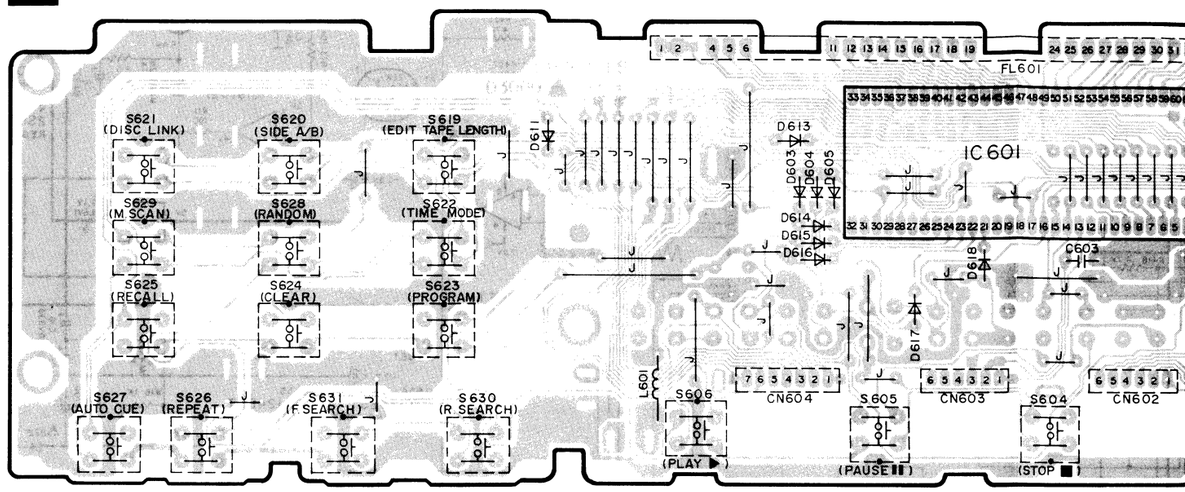




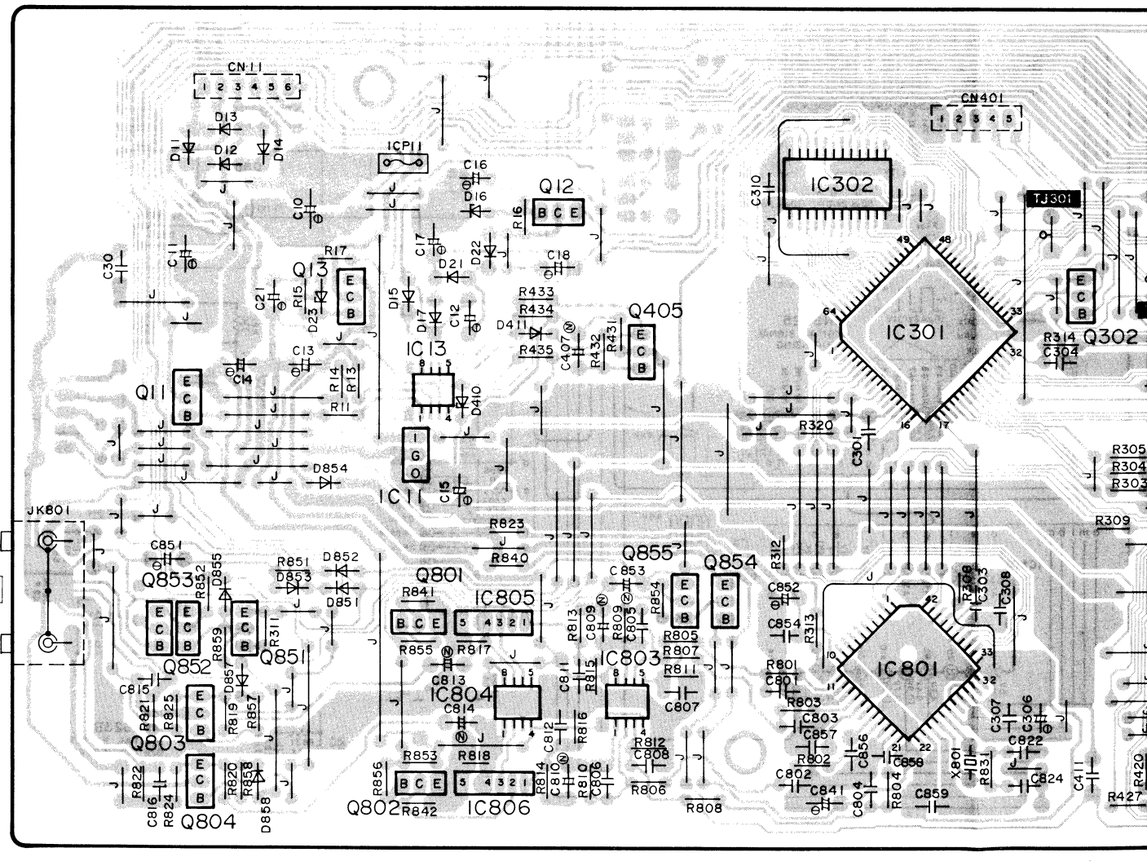
MA4330M
MA4062-H
MA4150-M
MA4033M

■ PRINTED CIRCUIT BOARDS

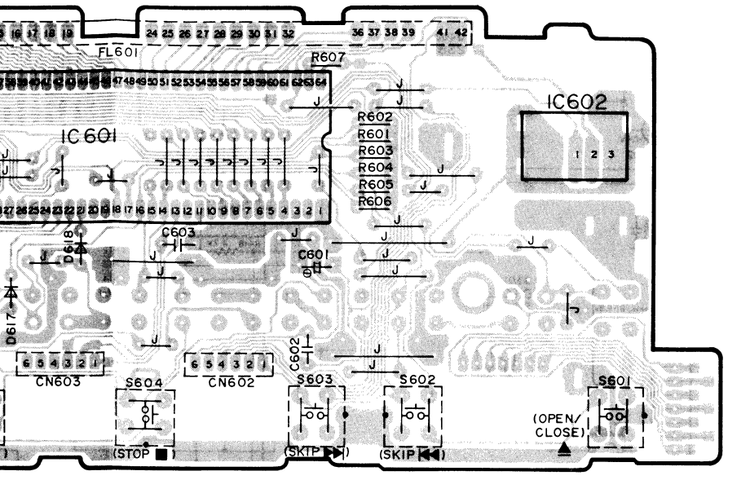
A OPERATION P.C.B.

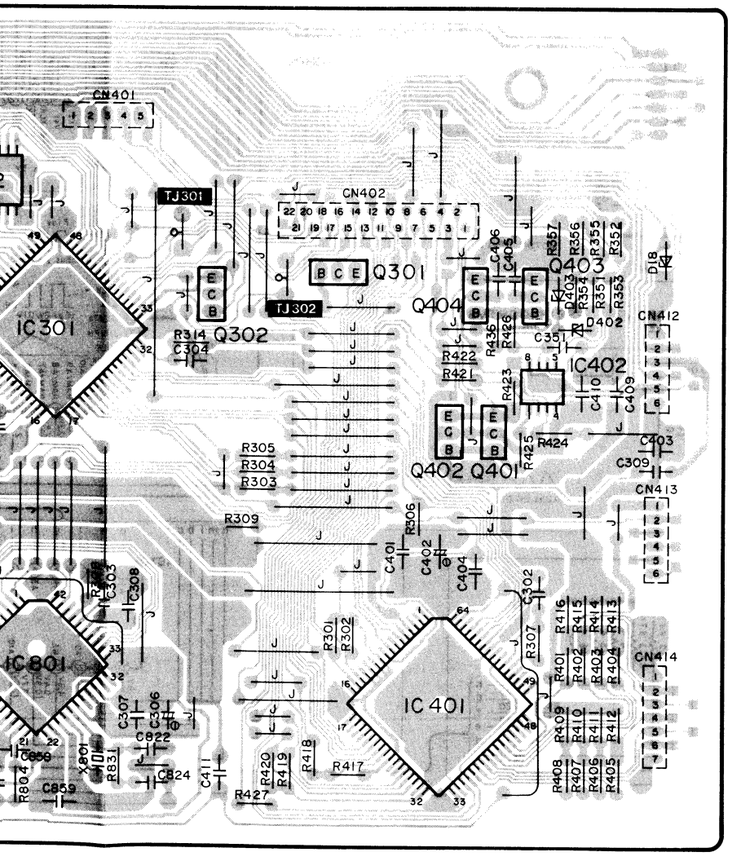


D MAIN P.C.B.

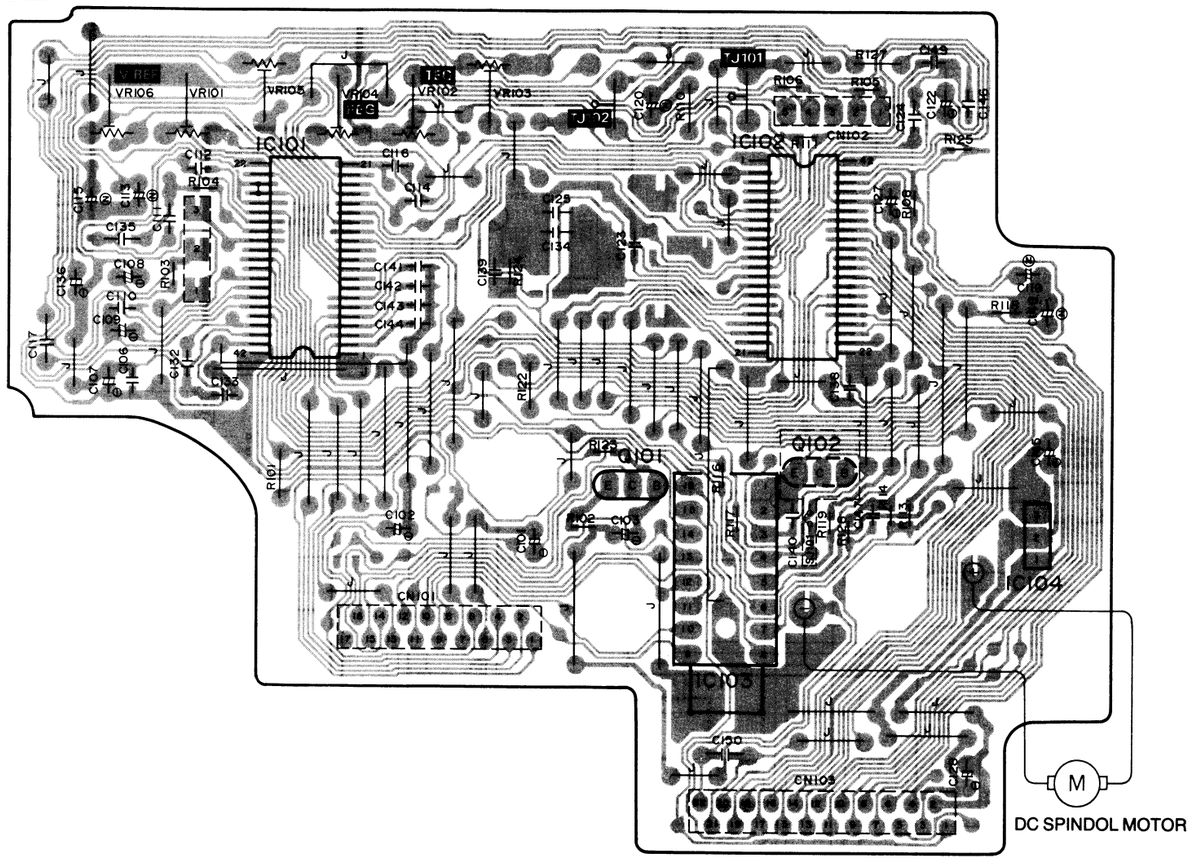


6 7 8 9 10 11 12 13 14 15 16 17 18 19

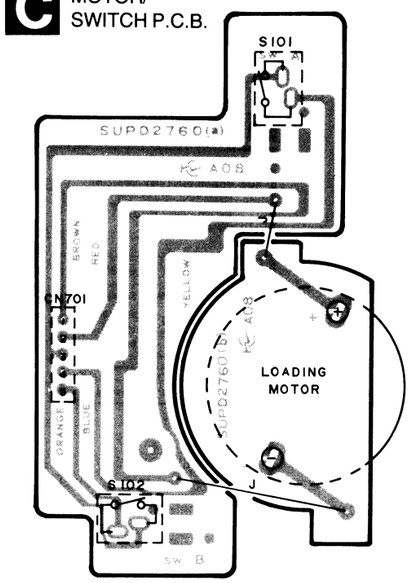




B SERVO P.C.B.



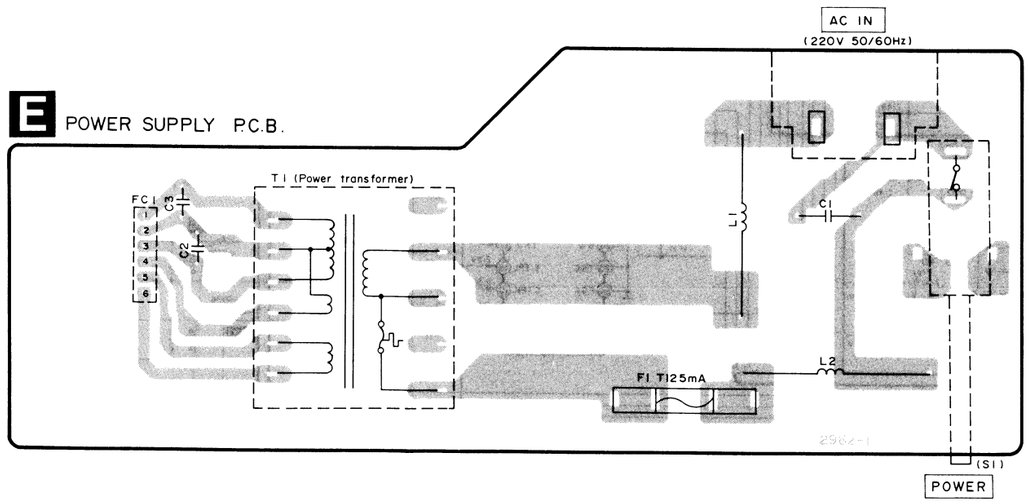
C MOTOR/ SWITCH P.C.B.



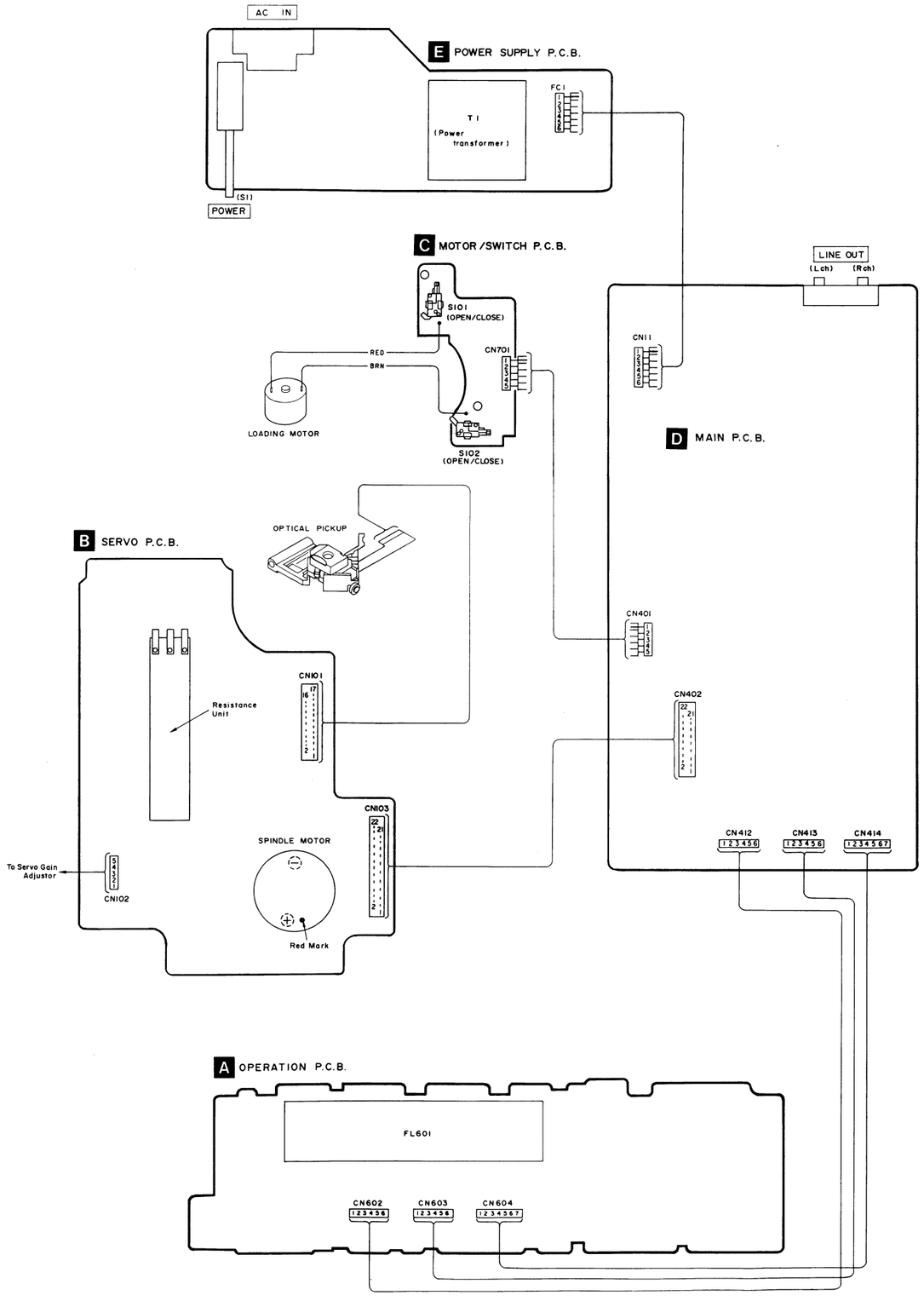
Note: Original circuit uses AN8377 for IC103 while the new circuit uses AN8377N for IC103.
(Refer to the table below for other changes.)

IC103 Modifi-cations	AN8377	AN8377N
IC104	LM2940T5M	Removed
Q102	Removed	2SB1240QR Added
C140	0.01 µF	Removed
C145	6 V 100 µF	Removed
Jumper SJ101	Removed	Shorted

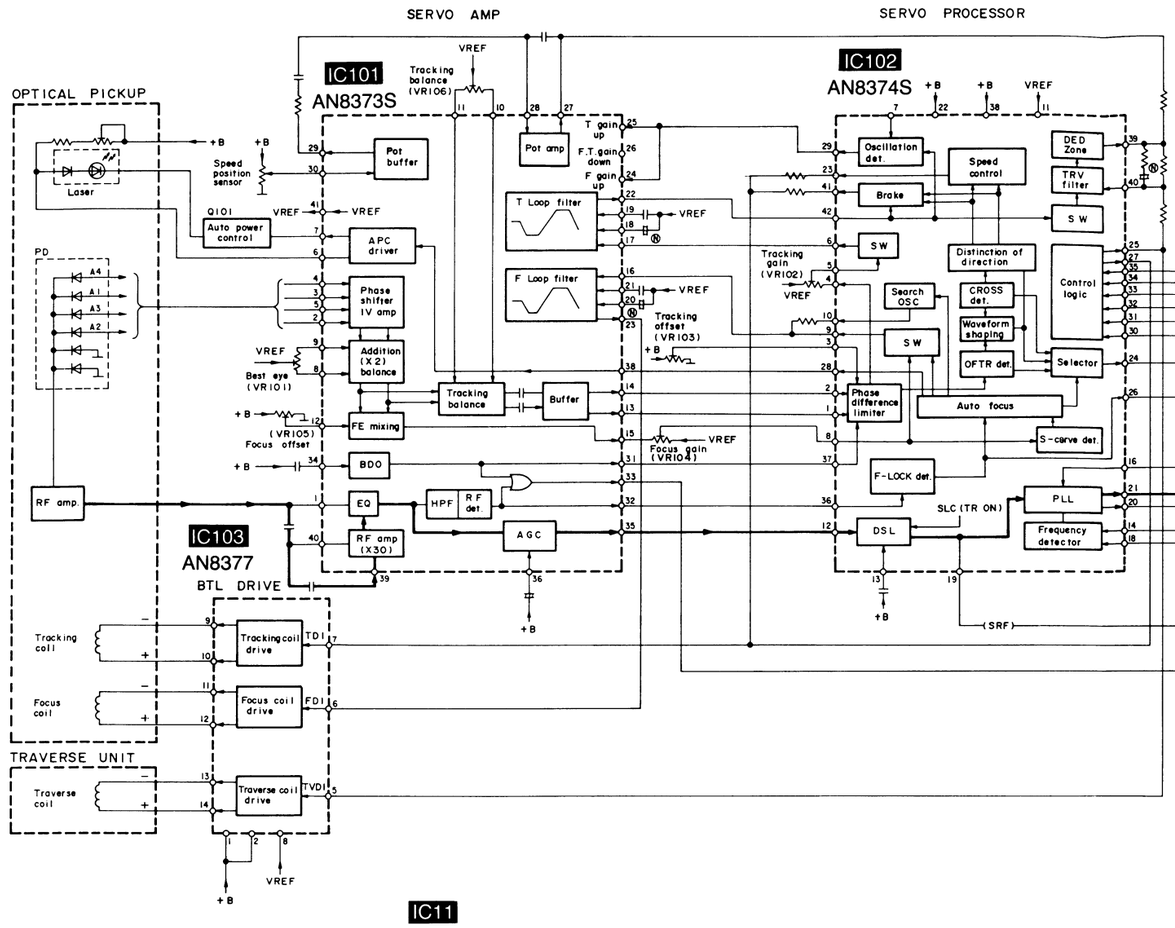
E POWER SUPPLY P.C.B.

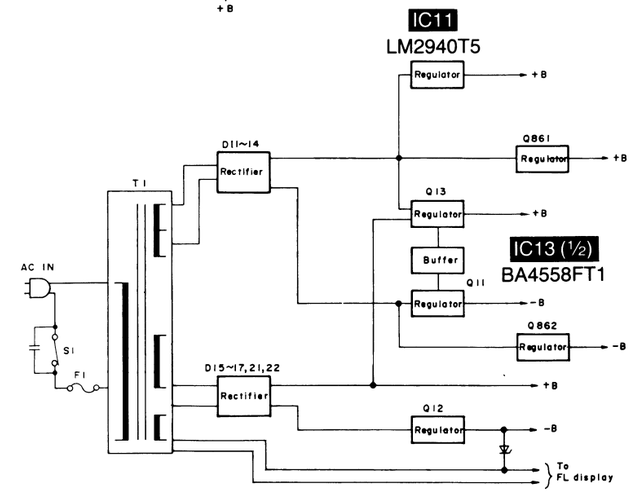


■ WIRING CONNECTION DIAGRAM



■ BLOCK DIAGRAM





PROCESSOR

IC301
MN6625
DIGITAL SIGNAL PROCESSING

IC801
MN6471 or MN6623B
DIGITAL FILTER & D/A CONVERTER

IC803 (1/2) IC805 IC804 (1/2)
LM833M SVIH8DN2175M NJM4560M

IC803 (2/2) IC806 IC804 (2/2)

IC871 (1/2)
NJM4556SA

IC402 (1/2)
BA4558FT1

IC302
16K RAM
SVICXK5816M

IC13 (1/2)
BA4558FT1

IC401
MN1554PEZ
SYSTEM CONTROL & FL DRIVE

IC601
MN15283PEY
FL DRIVE & KEY MATRIX CONTROL

IC402 (1/2)
BA4558FT1

KEY MATRIX

FL DISPLAY
FL601

LOADING MOTOR

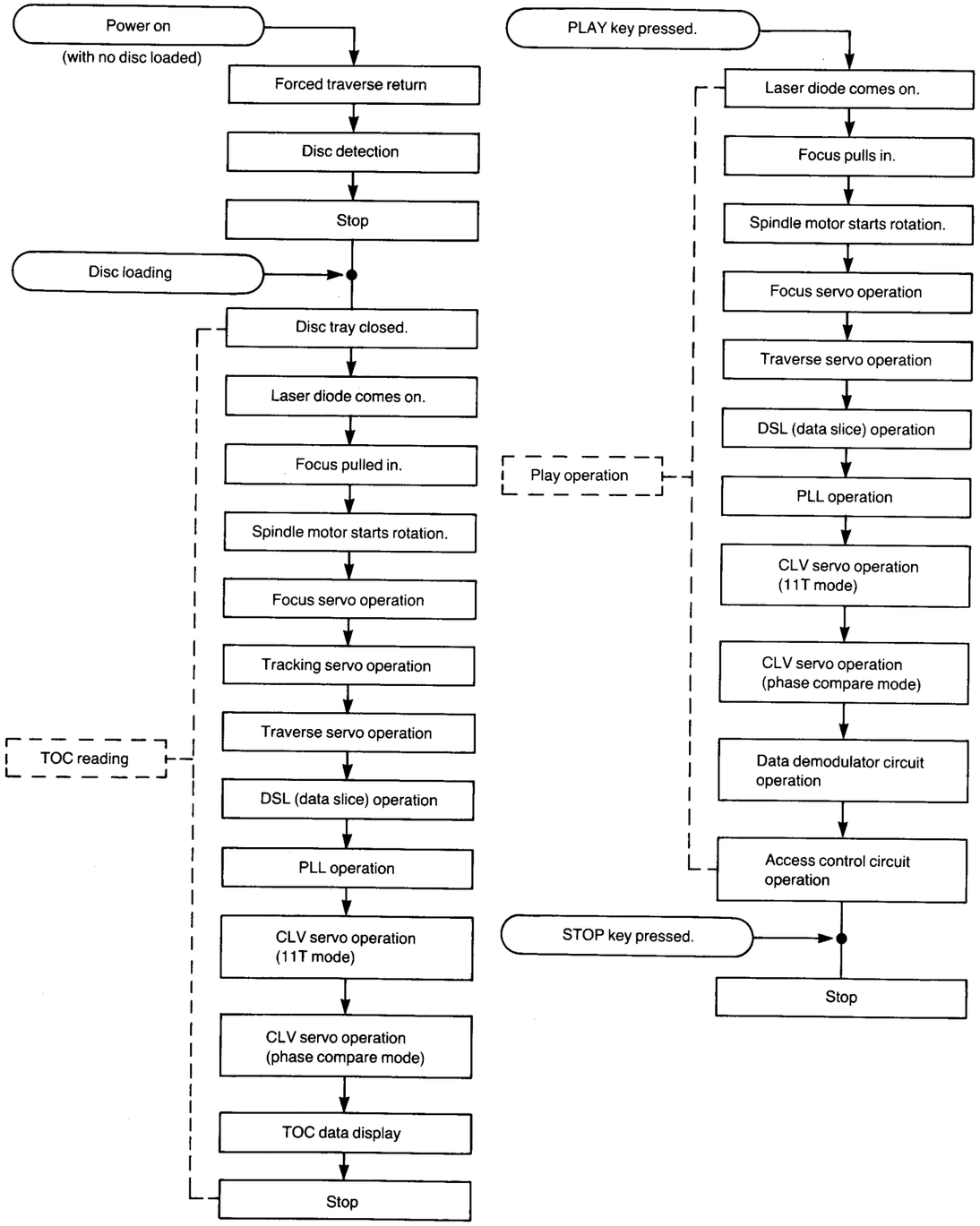
LINE OUT

HEADPHONES

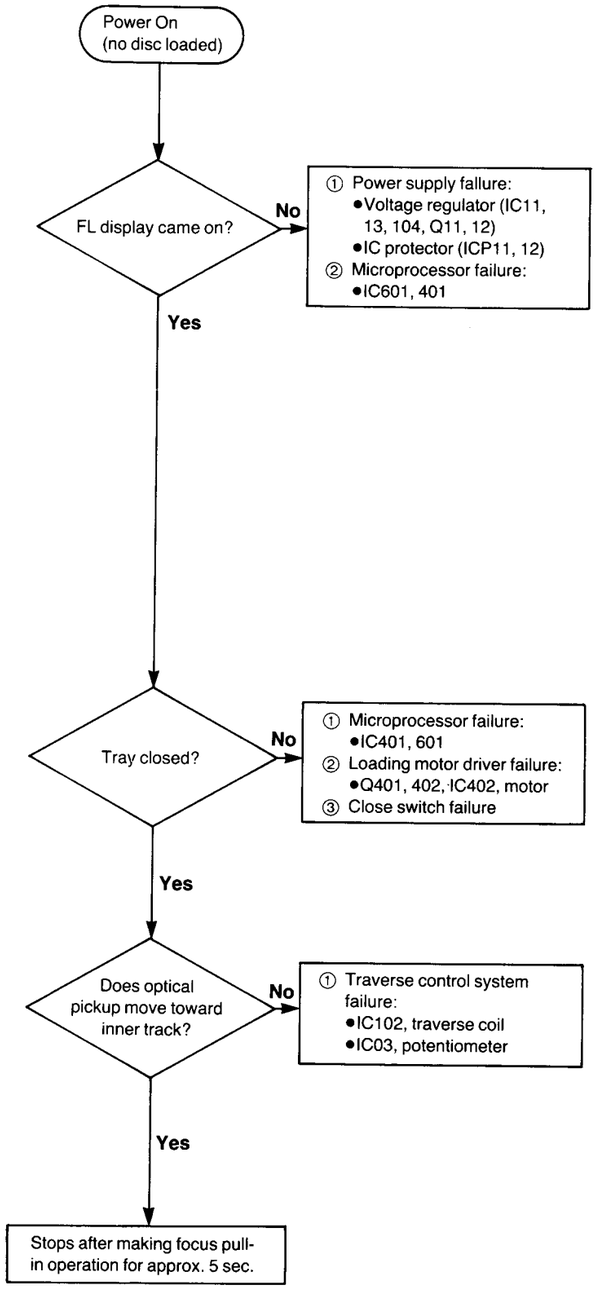
■ TROUBLESHOOTING GUIDE

SL-P202 Operation Sequence Check Sheet

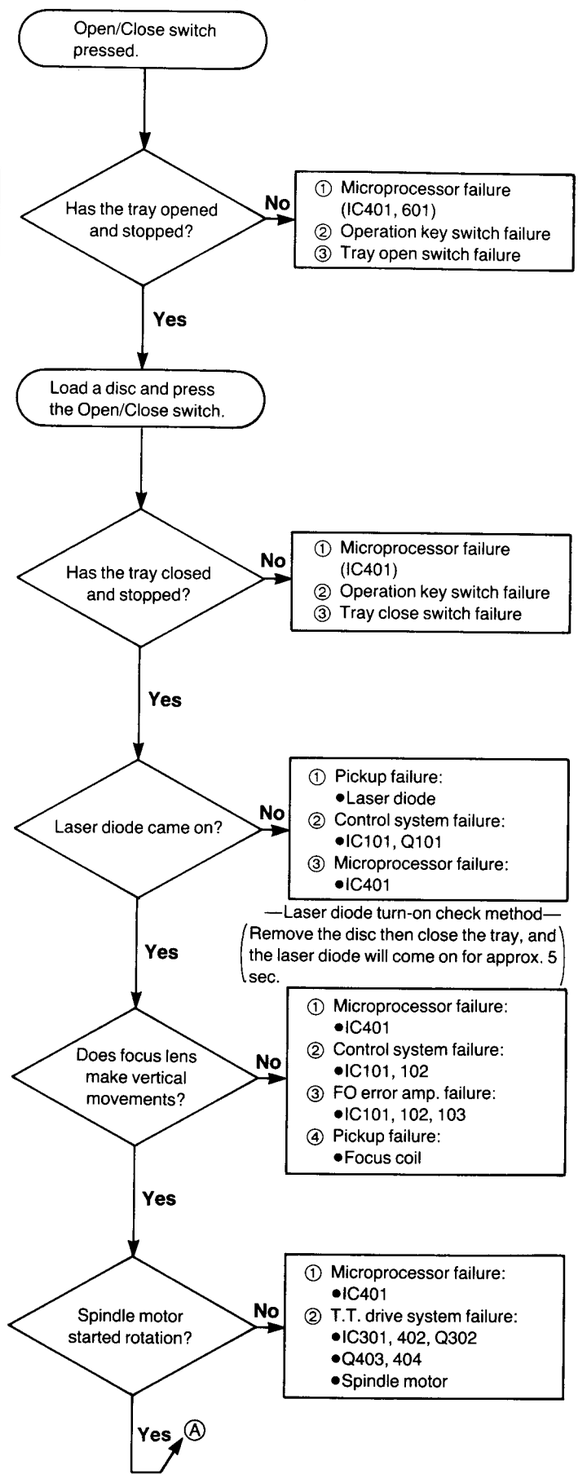
Play Operation Sequence

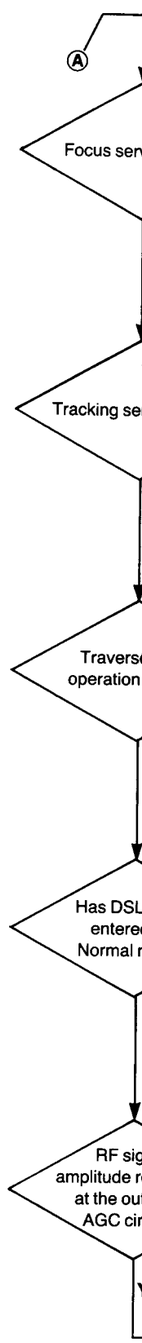


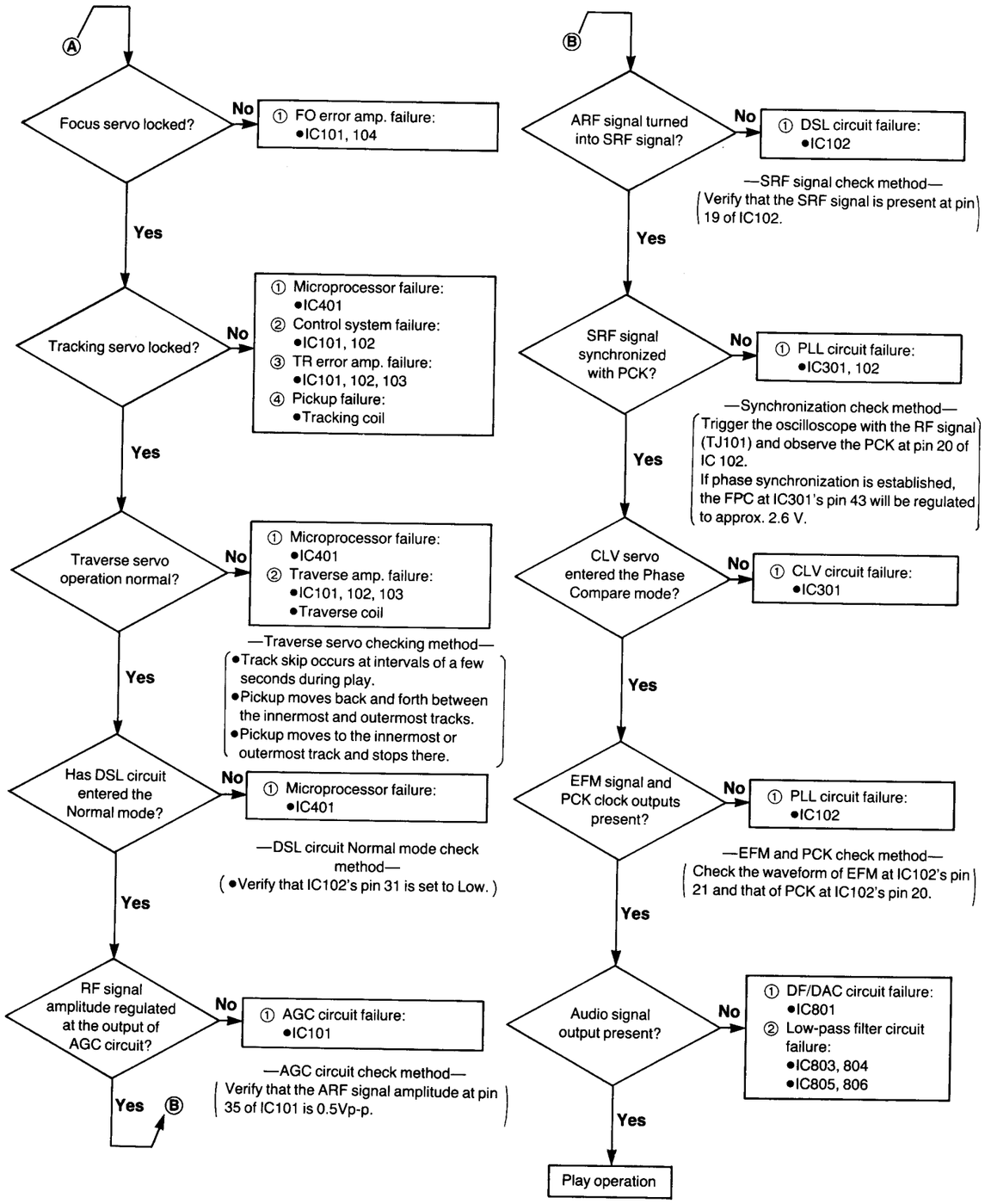
(Operation Sequence Just After Power On)



(TOC Read Operation-PLAY Operation)







■ FUNCTIONS OF IC TERMINALS

●IC101 (AN8373S): Servo amp.

Pin No.	MarK	I/O Division	Function
1	AMP1	I	RF signal input (×30 amp.)
2	PDAD	I	Photo detector current input (A2)
3	PDA	I	Photo detector current input (A1)
4	PDBD	I	Photo detector current input (A4)
5	PDB	I	Photo detector current input (A3)
6	LPD	I	Non-inverting laser power input
7	LD	O	Laser power auto control output
8	FBL1	I	PD balance adjustment
9	FBL2	I	
10	TBL1	I	Tracking balance adjustment
11	TBL2	I	
12	FOOFS	I	Focus offset adjustment
13	IVA	O	Current/voltage conversion output (A)
14	IVB	O	Current/voltage conversion output (B)
15	FE	O	Focus gain adjustment output
16	FPI	I	Focus error signal input
17	TPI	I	Tracking error signal input
18	C. TPL	I	Tracking error filter capacitor input
19	C. TPH		
20	C. FPL	I	Focus error filter capacitor input
21	C. FPH		

Pin No.	MarK	I/O Division	Function
22	TPO	O	Tracking error signal output
23	FPO	O	Focus error signal output
24	FGC	I	Focus gain up signal input (Not used, connected to GND)
25	TGC	I	Tracking gain up signal input (Not used, connected to GND)
26	GD	I	Focus/tracking gain down signal input (Not used, connected to GND)
27	PTO	O	Position detecting amp. output
28	PTI	I	Position detecting amp. input
29	PBO	O	Position detecting buffer output
30	POT	I	Position detecting buffer input
31	BDO	O	Dropout detection output
32	$\overline{\text{RFDET}}$	O	RF detections signal output
33	SDO	O	Dropout detection pulse output
34	C. SBDO	I	Dropout detecting capacitor input
35	ARF	O	RF signal output
36	C AGC	I	AGC detecting capacitor input
37	VCC	I	Power supply (+5 V input)
38	LDON	I	Laser power control input
39	RF IN	I	RF signal input
40	AMPO	O	RF signal output
41	VREF	O	Reference voltage output
42	GND	I	Ground terminal

•IC102 (AN8374S): Servo processor

Pin No.	MarK	I/O Division	Function
1	LSA	I	Phase difference input (A)
2	LSB	I	Phase difference input (B)
3	TEOFS	I	Tracking offset adjustment
4	TE	O	Tracking gain adjustment
5	TEG	I	
6	TE OUT	O	Tracking error signal output
7	TE BPF	I	Tracking error gain detecting filter (Not used, open)
8	FEG	I	Focus gain adjustment
9	FE OUT	O	Focus error signal output
10	CLW	O	Triangular wave oscillator capacitor input
11	VREF	I	Reference voltage input
12	ARF	I	RF signal input
13	CDSL	I	Data slice filter capacitor input
14	FPC	I	Frequency difference signal input
15	GND	I	Ground terminal
16	C. PLL	I	PLL loop filter constant
17	VSS	I	Ground terminal
18	CLK	I	Frequency pull-in clock signal (88.2 kHz) input
19	SRF	O	Sliced and digitized RF signal output
20	PCK	O	Clock output extracted from SRF
21	EFM	O	EFM signal output synchronous with PCK
22	VDD	I	Power supply (+5 V input)
23	SPCNT	O	Track crossing speed control output (Not used, open)
24	SENSE	O	Selector output (track crossing state)
25	TRV	O	Traverse servo control output
26	$\overline{\text{FLOCK}}$	O	Focus lock signal output
27	KICK	O	Track kick signal output
28	LDON	O	Laser power control output
29	VDET	O	Focus/tracking gain up output (Not used, open)
30	CNT1	I	Control input (FOON: Focus servo ON signal)
31	CNT2	I	Control input (TRON: Tracking servo ON signal)
32	CNT3	I	Control input [KICKF: Kick direction (forward) command]
33	CNT4	I	Control input [KICKR: Kick direction (reverse) command]
34	TRVF	I	Traverse forward command signal
35	TRVR	I	Traverse backward command signal
36	$\overline{\text{RFDET}}$	I	RF detection signal input
37	BDO	I	Dropout detection input
38	VCC	I	Power supply (+5 V input)
39	TVPO	O	Traverse position detecting resistor/ capacitor inputs
40	TVPI	O	
41	BROUT	I	Tracking drive control output
42	BRIN	I	Tracking error signal input

•IC103 (AN8377): BTL drive

Pin No.	MarK	I/O Division	Function
1	PVCC	I	Driver power supply (+8.9 input)
2	VCC	I	Power supply (+8.9 V input)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input
9	TD−	O	Inverting output of tracking driver
10	TD+	O	Non-inverting output of tracking driver
11	FD−	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD−	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	$\overline{\text{RESET}}$	O	Reset signal output
16	PC	I	PC input (connect to GND)

•IC301 (MN6625S): Digital signal processing

Pin No.	MarK	I/O Division	Function
1	BYTCK	O	Serial data byte clock (Not use, open)
2	LCLK	O	Crystal frame clock (Not use, open)
3	DEMPH	O	De-emphasis ON signal (de-emphasis ON at "H") (Not used, open)
4	SRDATA	O	Serial data output (MSB first)
5	SCK	O	Serial bit clock output
6	LRCK	O	LR discrimination signal output
7	WDCK	O	Serial data output word clock
8	LDG	O	L channel deglitch signal (Not used, open)
9	RDG	O	R channel deglitch signal (Not used, open)
10	IPFLAG	O	Interpolation flag (Interpolation at "H")
11	FLAG	O	Error flag terminal
12	XCK	O	Clock (16.9344 MHz) output (Not used, open)
13	TEST	I	Test mode selection (Not used, connected to +5 V)
14	TX	O	Digital signal output
15	SLEEP	I	Mode selector ("L": normal, "H": SLEEP mode)
16	CSEL	I	Test terminal ("L": normal)
17	X1	I	Clock input (16.9344 MHz)
18	X2	O	Clock output (16.9344 MHz) (Not used, open)
19	VSS	I	GND terminal
20	BLKCK	O	Sub-code block (Q data) clock (75 Hz)
21	$\overline{\text{CLDCK}}$	O	Sub-code frame (Q data) clock (7.35 kHz)
22	$\overline{\text{SUBQ}}$	O	Sub-code (Q data) output
23	$\overline{\text{RST}}$	I	Reset signal input (reset at "L")
24	MLD	I	Command load signal input

Pin No.	MarK	I/O Division	Function
25	MCLK	I	Command clock signal input
26	MDATA	I	Command data input
27	DMUTE	I	Muting control
28	$\overline{\text{TRON}}$	I	Tracking servo ON signal (tracking servo ON at "L")
29	STAT	O	Processing condition (CRC, CUE, CLVS, TT STOP, FCLV)
30	SUBC	O	Sub-code serial output data (Not used, open)
31	SBCK	I	Clock for sub-code serial output (Not used, open)
32	SMCK	O	Clock output (4.2336 MHz)
33	VDD	I	Power supply (connected to +5 V)
34	MEMP	I	Emphasis signal input
35	FG	I	Spindle motor FG signal input (Not used, open)
36	PC	O	Spindle motor ON signal (ON at "L")
37	EC	O	Spindle motor drive signal
38	RESY	O	Resynchronizing signal (Not used, open)
39	DO	I	Drop-out signal (Drop-out at "H")
40	SRF	I	EFM signal input (DSL)
41	EFM	I	EFM signal input (PLL)
42	PCK	I	PLL extract clock input (4.3218 MHz)
43	FPC	O	PLL frequency comparison signal
44 ~ 51	D7 ~ D0	I/O	16 K RAM data input/output
52	RAM/OE	O	16 K RAM OE signal
53	RAM/WE	O	16 K RAM WE signal
54 ~ 64	RAM/A0 ~ RAM/A10	O	16 K RAM address signal (RAMA0: LSB, RAMA10: MSB)

•IC401 (MN1554PEZ-1): System control

Pin No.	MarK	I/O Division	Function
1	BRECV	——	(Not used, open)
2	BSEND	——	(Not used, open)
3	SYNC	O	(Not used, open)
4	SIRQ	I	Not used (connected to +5 V)
5	BLKCK	I	Sub-code block (Q data) clock input (75 Hz)
6	CLDCK	I	Sub-code block (Q data) clock input (7.35 kHz)
7	SBO	I	(Not used, open)
8	SUBQ	I	Sub-code (Q data) input
9	RST	I	Reset signal input
10 ~ 13	P20 ~ P23	O	Not used (connected to +5 V)
14	CLOSE	O	Loading motor "Close" command
15	OPEN	O	Loading motor "Open" command
16	SLOW	O	(Not used, open)
17	MUTE	O	Muting control
18	SEEK	O	Traverse servo control (Not used, open)
19	NC	——	Not connected
20	TRV. R	O	Traverse "Reverse" command signal
21	TRV. F	O	Traverse "Forward" command signal
22	CNT4	O	Optical servo IC control signal [KICKR: Kick direction (reverse) command]
23	CNT3	O	Optical servo IC control signal [KICKF: Kick direction (forward) command]
24	CNT2	O	Optical servo IC control (TRON: Tracking servo)
25	VDD	I	Power supply (connected to +5 V)
26	DOWN	O	(Not used, open)
27	UP	O	(Not used, open)
28	CNT1	O	Optical servo IC control signal (FOON: Focus servo)

Pin No.	MarK	I/O Division	Function
29	CLOSE	I	Disc holder "Open" detection
30	OPEN	I	Disc holder "Close" detection
31	BCLK	I	(Not used, connected to GND)
32	BDATA	I	(Not used, connected to GND)
33	STAT	I	Processing status input from signal processing LSI
34	COMP	O	TOC reading control (ON at "L") (connected to GND)
35	FLOCK	I	Optical servo condition (focus) input
36	SENSE	I	Optical servo condition (track cross) input
37	RECV	I	Data receipt command signal
38	SEND	I	Data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 ~ 44	DATA0 ~ DATA3	I	Key scan signal
45 ~ 52	NC	I	Not connected
53	OSC2	I	Clock terminal
54	OSC1	I	Clock input
55	X1	I	Optical servo condition input
56	X0	O	(Not used, open)
57	GND	I	GND terminal
58	DMUTE	O	Muting control
59	MDATA	O	Command data output
60	MCLK	O	Data clock output (command clock signal)
61	MLD	O	Data output (command load signal)
62	DOUTON	O	Optical output control signal (Not used, open)
63	EMPH	O	Emphasis signal output
64	NC	——	Not connected

•IC601 (MN15283PEY-1): FL drive and Timing signal generator

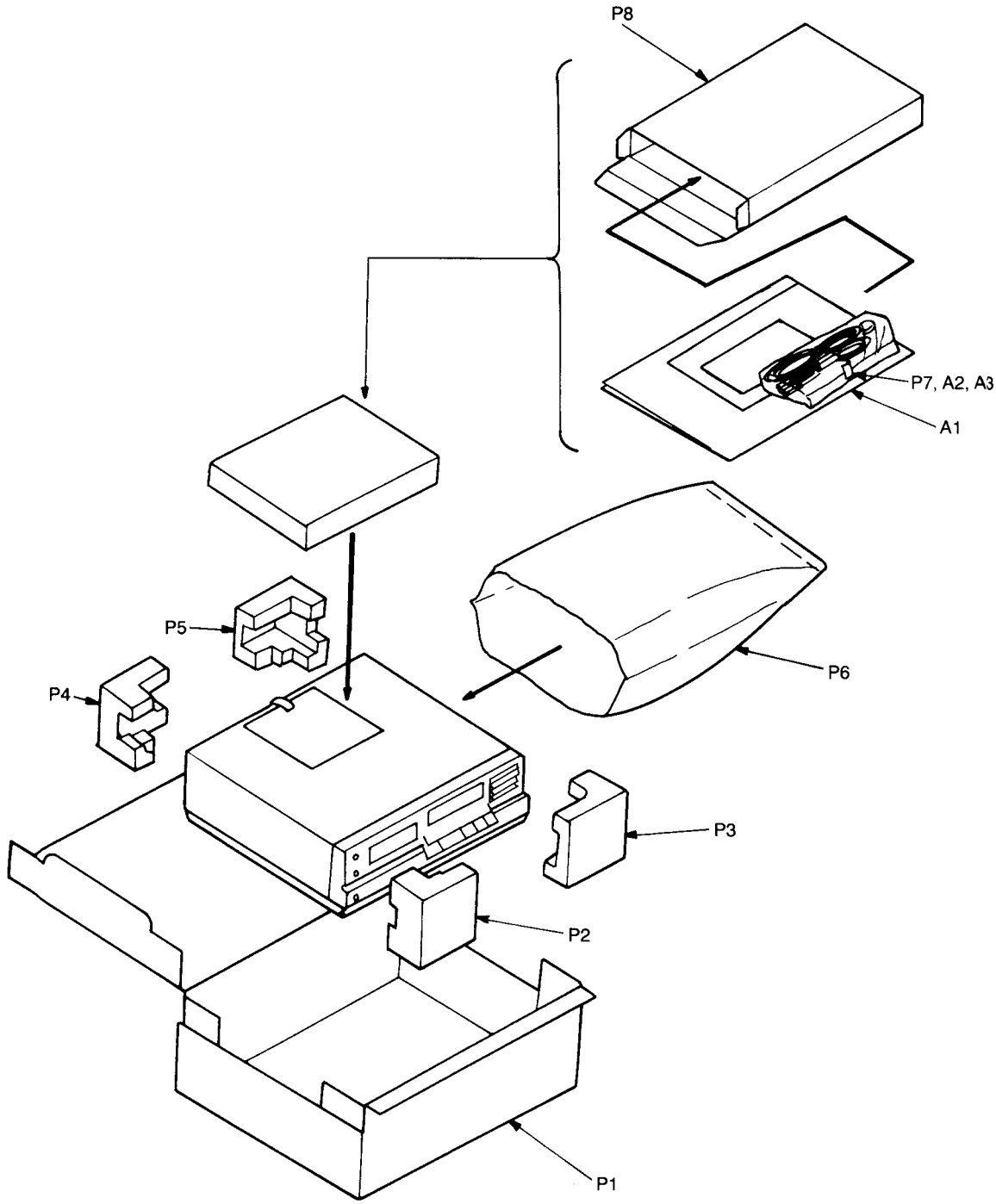
Pin No.	Mark	Terminal Name	I/O Division	Function
1	VSS	GND	I	GND terminal
2	XO	——	O	(Not used, open)
3	XI	TRCNT	I	(Not used, open)
4	PO0	MRLY	O	Muting control terminal
5	PO1	MDATA	O	Command data output
6	PO2	MCLK	O	Data clock output (Command clock)
7	PO3	MLD	O	Data output (Command load)
8	P10	SLOW	O	Motor drive control
9	P11	FOW/REV	O	Motor drive control
10	P12	LOADING	O	Motor drive control
11	P13	HIGH	O	Motor drive control
12	$\overline{\text{SYNC}}$	——	O	(Not used, open)
13	$\overline{\text{RST}}$	$\overline{\text{RESET}}$	I	Reset signal input (Reset at "L")
14	$\overline{\text{IRQ}}$	$\overline{\text{BLKCK}}$	I	Sub-code (Q data) clock (75 kHz) input
15 ~ 18	P50 ~ P53	KEY	I	Key scan signal input
19	$\overline{\text{SBT}}$	$\overline{\text{CLDCK}}$	I	(Not used, open)
20	$\overline{\text{SBD}}$	$\overline{\text{SUBQ}}$	I	
21	P20	——	O	(Not used, open)
22	P21	——	O	
23	P22	$\overline{\text{REV}}$	O	Traverse "Reverse" Command signal
24	P23	$\overline{\text{FWD}}$	O	Traverse "Foward" Command signal
25	P30	CNT4	O	Optical servo IC control signal [KICKR: Kick direction (reverse) control]
26	P31	CNT3	O	Optical servo IC control signal [KICKF: Kick direction (forward) control]
27	P32	CNT2	O	Optical servo IC control signal (TRON: Tracking servo)
28	P33	CNT1	O	(Not used, open)
29	P40	STAT	I	Processing status input from signal processing LSI
30	P41	HIGHT	I	Elevator hight signal input
31	P42	$\overline{\text{FLOCK}}$	I	(Not used, open)
32	P43	SENSE	I	
33	P60	PAUSE	O	(Not used, open)
34	P61	PLAY	O	
35	DAC	DAC	O	
36	VPP	——	I	FL drive power supply
37 ~ 52	D0 ~ DF	——	O	FL grid signal and key scan signal
53 ~ 61	S8 ~ S0	——	O	FL anode signal
62	VDD	——	I	Power supply (connected to +5 V)
63	OSC2	——	I	Clock terminal
64	OSC1	——	I	Clock signal input

•IC801 (MN6623B): Digital Filter and D/A Converter

Pin No.	Mark	I/O Division	Function
1	MLD	I	Command load input (load: L)
2	RSTB	I	Reset signal input (reset at "L")
3	IE	I	I²S select terminal ("H"=I²S)
4	TP1	——	TEST terminal (Not connected)
5	TP2	——	
6	TEST1	I	TEST terminal 1 (connected to GND)
7	TEST2	I	TEST terminal 2 (connected to GND)
8	NC	——	Not connected
9	NC	——	Not connected
10	AVDD4	I	Power supply (connected to +5 V)
11	OUTL (−)	O	Lch data output, (−) terminal
12	AVSS4	I	GND terminal
13	AVSS3	I	GND terminal
14	OUTL (+)	O	Lch data output, (+) terminal
15	AVDD3	I	Power supply (connected to +5 V)
16	NC	——	Not connected
17	AVDD2	I	Power supply (connected to +5 V)
18	OUTR (+)	O	Rch data output, (+) terminal
19	AVSS2	I	GND terminal (analog system)
20	AVSS1	I	GND terminal (analog system)
21	OUTR (−)	O	Rch data output, (−) terminal

Pin No.	Mark	I/O Division	Function
22	AVDD1	I	Power supply (connected to +5 V)
23	DVDD1	I	Power supply (connected to +5 V)
24	DVSS1	I	GND terminal (digital system)
25	X2	O	Clock output
26	X1	I	Clock input
27	NC	——	Not connected
28	DVDD2	I	Power supply (connected to +5 V)
29	DVSS2	I	GND terminal (digital system)
30	NSUB	I	Sub-strate terminal
31	O OUT	——	Not used
32	192 fs	O	192 fs (Not used)
33	LRPOL	I	LR clock selector (Not used)
34	L/R	I	L/R clock
35	SRCK	I	Serial data best clock
36	SRDATA	I	Serial data input (MSB first)
37	DVSS3	I	GND terminal (digital system)
38	DVDD3	——	Power supply
39	384 fs	O	384 fs (16.9344 MHz) output
40	PD	I	Power down terminal
41	MDATA	I	Command data input
42	MCLK	I	Command clock input

■ PACKING



■ RESISTORS AND CAPACITORS

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Unique
ECEA	50	M	330	
Type	Voltage (50V)	Characteristics	Value (33μF)	

- Capacity values are in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Resistor Type		Wattage		Tolerance
ERD	: Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG	: Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ	: Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX	: Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L	: Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K	: Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC	: Solid	6G : 1/10W	8G : 1/8W	
ERF	: Incombustible Box-Shaped			
ERM	: Wire-Wound			
RRJ	: Chip Resistor			
ERJ	: Chip Resistor			

Capacitor Type		Voltage		Tolerance
ECE	: Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD	: Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD	: Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 −20 %
ECQM	: Polyester	50 : 50V	05 : 50V	
ECQP	: Polypropylene	2H : 500V	2A : 100V	J : ±5%
ECG	: Ceramic	1 : 100V	1J : 63V	G : ±2%
ECEA N	: Non Polar Electrolytic	KC : 400V AC		F : ±1%
QCU	: Ceramic (Chip Type)	KC : 125V AC (UL)		C : ±0.25pF
ECUX	: Ceramic (Chip Type)			D : ±0.5pF
ECF	: Semiconductor			
EECW	: Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R11	ERDS2TJ101	100 1/4
R13	ERDS2TJ103	10K 1/4
R14	ERDS2TJ103	10K 1/4
R15	ERDS2TJ331	330 1/4
R16	ERDS2TJ102	1K 1/4
R17	ERDS2TJ471	470 1/4
R301	ERDS2TJ472	4.7K 1/4
R302	ERDS2TJ472	4.7K 1/4
R303	ERDS2TJ472	4.7K 1/4
R304	ERDS2TJ472	4.7K 1/4
R305	ERDS2TJ472	4.7K 1/4
R306	ERDS2TJ472	4.7K 1/4
R307	ERDS2TJ104	100K 1/4
R308	ERDS2TJ561	560 1/4
R309	ERDS2TJ472	4.7K 1/4
R311	ERDS2TJ472	4.7K 1/4
R312	ERDS2TJ100	10 1/4
R313	ERDS2TJ100	10 1/4
R314	ERDS2TJ182	1.8K 1/4
R320	ERDS2TJ331	330 1/4
R351	ERDS2TJ103	10K 1/4
R352	ERDS2TJ154	150K 1/4
R353	ERDS2TJ123	12K 1/4
R354	ERDS2TJ154	150K 1/4
R355	ERDS2TJ333	33K 1/4
R356	ERDS2TJ333	33K 1/4
R357	ERDS2TJ8R2	8.2 1/4
R401	ERDS2TJ221	220 1/4
R402	ERDS2TJ221	220 1/4
R403	ERDS2TJ221	220 1/4
R404	ERDS2TJ221	220 1/4
R405	ERDS2TJ221	220 1/4
R406	ERDS2TJ221	220 1/4
R407	ERDS2TJ221	220 1/4
R408	ERDS2TJ221	220 1/4
R409	ERDS2TJ472	4.7K 1/4
R410	ERDS2TJ472	4.7K 1/4
R411	ERDS2TJ472	4.7K 1/4
R412	ERDS2TJ472	4.7K 1/4
R413	ERDS2TJ472	4.7K 1/4
R414	ERDS2TJ472	4.7K 1/4
R415	ERDS2TJ472	4.7K 1/4
R416	ERDS2TJ472	4.7K 1/4
R417	ERDS2TJ472	4.7K 1/4
R418	ERDS2TJ472	4.7K 1/4
R419	ERDS2TJ472	4.7K 1/4
R420	ERDS2TJ472	4.7K 1/4
R421	ERDS2TJ913T	91K 1/4
R422	ERDS2TJ913T	91K 1/4
R423	ERDS2TJ124	120K 1/4
R424	ERDS2TJ124	120K 1/4
R425	ERDS2TJ101	100 1/4
R426	ERDS2TJ101	100 1/4
R427	ERDS2TJ472	4.7K 1/4
R431	ERDS2TJ472	4.7K 1/4
R432	ERDS2TJ101	100 1/4
R433	ERDS2TJ153	15K 1/4
R434	ERDS2TJ393	39K 1/4
R435	ERDS2TJ102	1K 1/4
R436	ERDS2TJ150	15 1/4
R801	ERDS2TJ103	10K 1/4
R802	ERDS2TJ103	10K 1/4
R803	ERDS2TJ103	10K 1/4
R804	ERDS2TJ103	10K 1/4
R805	ERDS2TJ273	27K 1/4
R806	ERDS2TJ273	27K 1/4
R807	ERDS2TJ273	27K 1/4
R808	ERDS2TJ273	27K 1/4
R809	ERDS2TJ473	47K 1/4
R810	ERDS2TJ473	47K 1/4
R811	ERDS2TJ473	47K 1/4
R812	ERDS2TJ473	47K 1/4
R813	ERDS2TJ221	220 1/4
R814	ERDS2TJ221	220 1/4
R815	ERDS2TJ474	470K 1/4
R816	ERDS2TJ474	470K 1/4
R817	ERDS2TJ103	10K 1/4
R818	ERDS2TJ103	10K 1/4
R819	ERDS2TJ471	470 1/4
R820	ERDS2TJ471	470 1/4
R821	ERDS2TJ473	47K 1/4
R822	ERDS2TJ473	47K 1/4
R823	ERDS2TJ331	330 1/4
R824	ERDS2TJ331	330 1/4
R825	ERDS2TJ331	330 1/4
R831	ERDS2TJ472	4.7K 1/4
R840	ERDS2TJ331	330 1/4
R841	ERDS2TJ105	1M 1/4
R842	ERDS2TJ105	1M 1/4
R851	ERDS2TJ102	1K 1/4
R852	ERDS2TJ471	470 1/4
R853	ERDS2TJ333	33K 1/4
R854	ERDS2TJ183	18K 1/4
R855	ERDS2TJ102	1K 1/4
R856	ERDS2TJ102	1K 1/4
R857	ERDS2TJ102	1K 1/4
R858	ERDS2TJ102	1K 1/4
R859	ERDS2TJ102	1K 1/4
CAPACITORS(VALUE,VOLTAGE)		
C1 ⚠	ECKDKC103PF2	0.01 125
C2	ECKM1H103ZFX	0.01 50
C3	ECKM1H103ZFX	0.01 50
C10	ECEA1CU332	3300 16
C11	ECEA1CU222	2200 16
C12	ECEA1VU101	100 35
C13	ECEA1AK101	100 10
C14	ECEA1AK101	100 10
C15	ECEA0JK470	47 6.3
C16	ECEA1CU331	330 16
C17	ECEA1CU331	330 16
C18	ECEA1VU101	100 35
C21	ECEA1CU221	220 16
C30	ECFR1E104ZF5	0.1 25
C301	ECFR1E104ZF5	0.1 25
C302	ECBT1C103NS5	0.01 16
C303	ECBT1H6R8K5	6.8P 50
C304	ECBT1H220J5	22P 50
C306	ECEA0JK101	100 6.3
C307	ECFR1E104ZF5	0.1 25
C308	ECFR1E104ZF5	0.1 25
C309	ECBT1C103NS5	0.01 16
C310	ECFR1E104ZF5	0.1 25
C351	ECBT1H102KB5	0.001 50

Ref. No.	Part No.	Value.
C401	ECFR1E104ZF5	0.1 25
C402	ECEA0JK470	47 6.3
C403	ECFR1E104ZF5	0.1 25
C404	ECFR1E104ZF5	0.1 25
C405	ECBT1H102KB5	0.001 50
C406	ECBT1H102KB5	0.001 50
C407	ECEA1HKN010B	1 50
C409	ECBT1H102KB5	0.001 50
C410	ECBT1H102KB5	0.001 50
C411	ECFR1E104ZF5	0.1 25
C601	ECEA0JK470	47 6.3
C801	ECBT1H680J5	68P 50
C802	ECBT1H680J5	68P 50
C803	ECBT1H680J5	68P 50
C804	ECBT1H680J5	68P 50
C805	ECBT1H470J5	47P 50
C806	ECBT1H470J5	47P 50
C807	ECBT1H470J5	47P 50
C808	ECBT1H470J5	47P 50
C809	ECEA1EN3R3S	3.3 25
C810	ECEA1EN3R3S	3.3 25
C811	ECBT1H102KB5	0.001 50
C812	ECBT1H102KB5	0.001 50
C813	ECEA1CN220S	22 16
C814	ECEA1CN220S	22 16
C815	ECBT1H102KB5	0.001 50
C816	ECBT1H102KB5	0.001 50
C822	ECBT1H5R6K5	5.6P 50
C824	ECBT1H5R6K5	5.6P 50
C842	ECEA0JS331	330 6.3
C851	ECEA0JU471	470 6.3
C852	ECEA0JS331	330 6.3
C853	ECEA1CKN100B	10 16
C854	ECFR1E104ZF5	0.1 25
C856	ECFR1E104ZF5	0.1 25
C857	ECFR1E104ZF5	0.1 25
C858	ECFR1E104ZF5	0.1 25
C859	ECFR1E104ZF5	0.1 25
C881	ECEA1CN101SE	100 16
C882	ECEA1CN101SE	100 16
RESISTORS(VALUE,WATTAGE)		
R101	ERDS2TJ471	470 1/4
R102	ERJ6GEYJ120V	12 1/10
R103	ERJ6GEYJ122	1.2K 1/10
R104	ERJ6GEYJ471	470 1/10
R105	RRJ6GCJ102TE	1K 1/6
R106	RRJ6GCJ102TE	1K 1/6
R108	ERJ6GEYJ224V	220K 1/10
R110	ERDS2TJ222	2.2K 1/4
R111	ERJ6GEYJ154V	150K 1/10
R113	ERJ6GEYJ472V	4.7K 1/10
R114	ERJ6GEYJ683V	68K 1/10
R116	ERJ6GEYJ332V	3.3K 1/10
R117	ERJ6GEYJ123	12K 1/10
R118	ERJ6GEYJ333V	33K 1/10
R119	RRJ6GCJ223TE	22K 1/6
R122	ERDS2TJ104	100K 1/4
R123	ERJ6GEYJ470V	47 1/10
R124	RRJ6GCJ103TE	10K 1/6
R125	RRJ6GCJ222TE	2.2K 1/6
R127	ERDS2TJ681	680 1/4
R128	RRJ6GCJ103TE	10K 1/6
CAPACITORS(VALUE,VOLTAGE)		
C101	ECEA1CKS220I	22 16
C102	ECEA1HKS010I	1 50
C103	ECEA1CKS220I	22 16
C106	RCUV1E104ZF	0.1 25
C107	ECEA0GKS101I	100 4
C108	ECEA0JKS470I	47 6.3
C109	ECEA1HKS010I	1 50
C110	RCUV1H681KB	680P 50
C111	ECUV1C224KR	0.22 16
C112	RCUV1H331KB	330P 50
C113	ECEA1HSN010I	1 50
C114	RCUV1E333KB	0.033 25
C115	ECEA1HSN010I	1 50
C116	RCUV1E333KB	0.033 25
C117	ECBT1H102KB5	0.001 50
C119	ECEA1CKN4R7I	4.7 16
C120	ECEA1CKN4R7I	4.7 16
C122	ECEA0JKS220I	22 6.3
C123	RCUV1E104ZF	0.1 25
C124	ECUV1E823KB	0.082 25
C125	ECUV1C224KR	0.22 16
C127	ECEA0JKF101I	100 6.3
C128	ECEA1CKA101I	100 16
C132	ECUV1E104KB	0.1 25
C133	RCUV1H330KC	33P 50
C134	ECUV1C224KR	0.22 16
C135	ECUV1C224KR	0.22 16
C136	ECEA0GKS101I	100 4
C138	RCUV1E104ZF	0.1 25
C139	RCUV1H470KC	47P 50
C140	RCUV1E103KB	0.01 25
C141	RCUV1H470KC	47P 50
C142	RCUV1H470KC	47P 50
C143	RCUV1H470KC	47P 50
C144	RCUV1H470KC	47P 50
C145	ECEA0JKF101I	100 6.3
C146	RCUV1H181KC	180P 50
C147	RCUV1H472KB	0.0047 50
C148	ECEA1ESN4R7I	4.7 25
C149	RCUV1E104ZF	0.1 25
C150	RCUV1E103KB	0.01 25

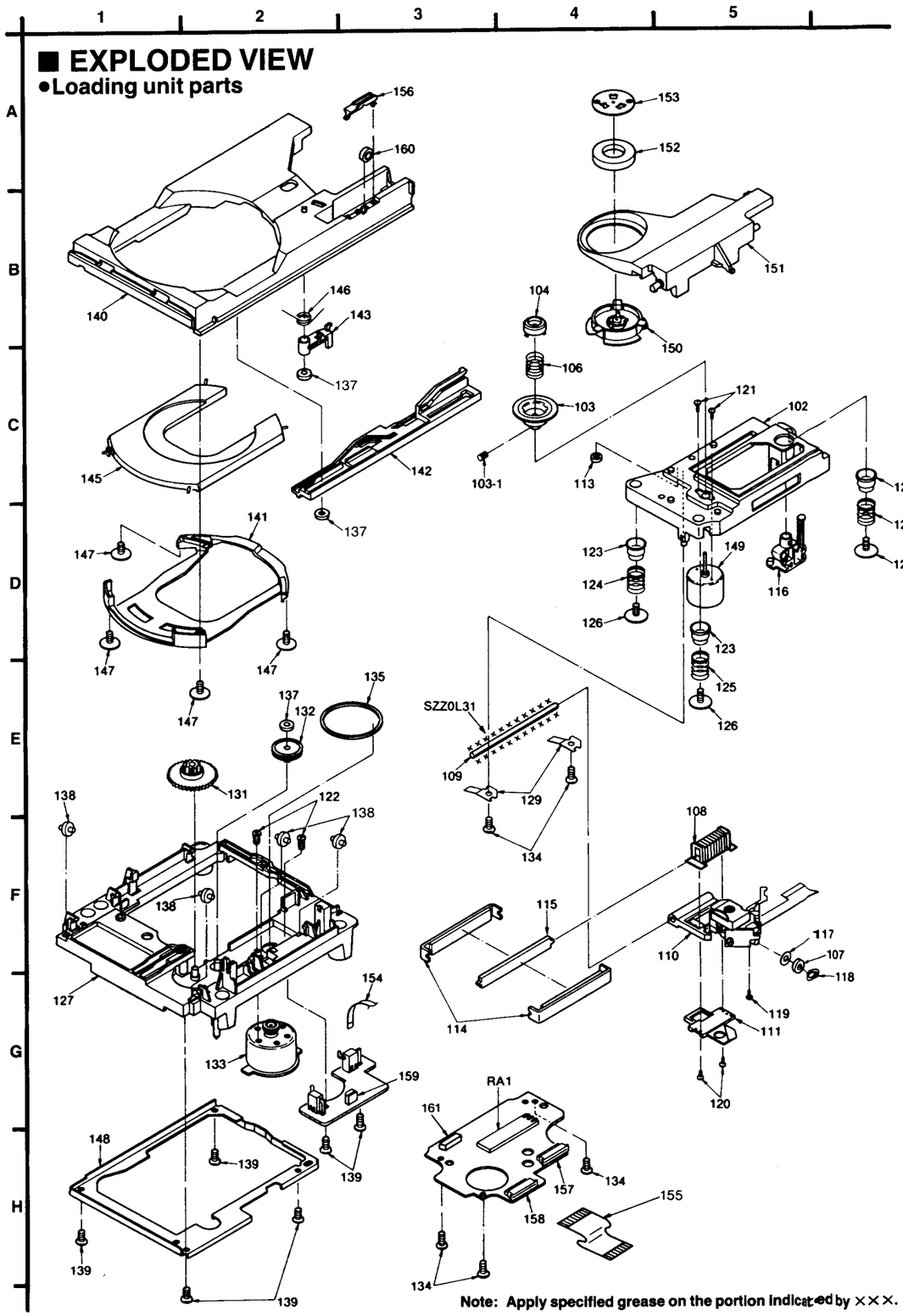
■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* "Ⓚ" mark parts are used for black type only.
* "Ⓢ" mark parts are used for silver type only.
Parts other than "Ⓚ" and "Ⓢ" marked are used for all color types
* Warning : This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG :
Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC11	LM2940T5	I.C. REGULATOR
IC13	BA4558FT1	I.C. RESET
IC301	MN6625	IC, SIGNAL PROCESSING
IC302	SVICXK5816M	I.C. 16K RAM
IC401	MN1554PEZ-1	I.C. SYSTEM CONTROL
IC402	BA4558FT1	I.C. MOTOR DRIVE
IC601	MN15283PEY-1	I.C. FL DRIVE
IC602	HC-MD10E	I.C. REMOTE SENSOR
IC801	MN6623B	I.C. DF&D/A CONVERTER
IC803	LM833M	I.C. BUFFER AMP
IC804	NJM4560M	I.C. BUFFER AMP
IC805	SVIH8DN2175M	I.C. LPF
IC806	SVIH8DN2175M	I.C. LPF
IC871	NJM4556SA	I.C. HEADPHONES AMP
ICP11 ⚠	SRUN15	I.C.PROTECTOR
TRANSISTORS		
Q11	2SB1240-P	TRANSISTOR
Q12	2SB1238QS	TRANSISTOR
Q13	2SD1862-P	TRANSISTOR
Q301	DTC124EST	TRANSISTOR
Q302	DTA124EST	TRANSISTOR
Q401	2SD1862-P	TRANSISTOR
Q402	2SB1240-P	TRANSISTOR
Q403	2SD1862-P	TRANSISTOR
Q404	2SB1240-P	TRANSISTOR
Q405	DTC124EST	TRANSISTOR
Q801	2SC3311A-Q	TRANSISTOR
Q802	2SC3311A-Q	TRANSISTOR
Q803	2SD1450R	TRANSISTOR
Q804	2SD1450R	TRANSISTOR
Q851	DTA124EST	TRANSISTOR
Q852	DTC124EST	TRANSISTOR
Q853	DTA114EST	TRANSISTOR
Q854	DTC124EST	TRANSISTOR
Q855	DTA124EST	TRANSISTOR
DIODES		
D11	SVDS5688GT3	DIODE, SI
D12	SVDS5688GT3	DIODE, SI
D13	SVDS5688GT3	DIODE, SI
D14	SVDS5688GT3	DIODE, SI
D15	SVDS5688GT3	DIODE, SI
D16	MA4330M	DIODE
D17	SVDS5688GT3	DIODE, SI
D18	MA4062-H	DIODE
D21	SVDS5688GT3	DIODE, SI
D22	SVDS5688GT3	DIODE, SI
D23	MA4062-H	DIODE
D402	MA4051-M	DIODE
D403	MA4051-M	DIODE
D410	MA4033M	DIODE
D411	MA165	DIODE
D851	MA165	DIODE
D852	MA165	DIODE
D853	MA165	DIODE
D854	MA165	DIODE
D855	MA165	DIODE
D857	MA165	DIODE
D858	MA165	DIODE
VARIABLE RESISTORS		
VR871	EVU57A022A14	V.R. HEADPHONES VOL
COILS AND TRANSFORMERS		
L1	SLQX400-D	COIL
L2	SLQX400-D	COIL
L601	VLP0053	COIL
T1 ⚠	SLTD5K097SE	POWER TRANSFORMER
OSCILLATORS		
X801	SVQ49U338S	OSCILLATOR
DISPLAYS		
FL601	SAD16MT22GK	DISPLAY TUBE
FUSES		
F1 ⚠	XBA2C012TB0S	FUSE(250V,T125mA)
SWITCHES		
S1 ⚠	ESB8249V	SW, POWER
S101	SSPD17	SW, LOADING DETECTOR
S102	SSPD18	SW, LOADING DETECTOR
S601	EVQQS705G	SW, OPEN/CLOSE
S602	EVQQS705G	SW, SKIP(R)
S603	EVQQS705G	SW, SKIP(F)
S604	EVQQS705G	SW, STOP
S605	EVQQS705G	SW, PAUSE
S606	EVQQS705G	SW, PLAY
S619	EVQQS705G	SW, EDIT TAPE LENGTH
S620	EVQQS705G	SW, SIDE A/B
S621	EVQQS705G	SW, DISC LINK
S622	EVQQS705G	SW, TIME MODE
S623	EVQQS705G	SW, PROGRAM
S624	EVQQS705G	SW, CLEAR
S625	EVQQS705G	SW, RECALL
S626	EVQQS705G	SW, REPEAT
S627	EVQQS705G	SW, AUTO CUE
S628	EVQQS705G	SW, RANDOM PLAY
S629	EVQQS705G	SW, MUSIC SCAN
S630	EVQQS705G	SW, B SEARCH
S631	EVQQS705G	SW, F SEARCH
INTEGRATED CIRCUITS		
IC101	AN8373S	I.C. SERVO AMP
IC102	AN8374S	I.C. SERVO PROCESS
IC103	AN8377	I.C. B.T.L DRIVE
IC104	LM2940T5M	I.C. RESET
TRANSISTORS		
Q101	2SA1547QSTV2	TRANSISTOR
VARIABLE RESISTORS		
VR101	EVND3AA00B14	V.R. BEST EYE ADJ.
VR102	EVND3AA00B14	V.R. TRACKING GAIN ADJ.
VR103	EVND3AA00B14	V.R. TRACKING OFFSET ADJ
VR104	EVND3AA00B14	V.R. FOCUS GAIN ADJ.
VR105	EVND3AA00B14	V.R. FOCUS OFFSET ADJ.
VR106	EVND3AA00B24	V.R. TRACKING BALANCE AD
MAGNET RESISTOR ELEMENTS		
RA1	EWS7M0A00Q53	RESISTANCE UNIT

■ EXPLODED VIEW

●Loading unit parts



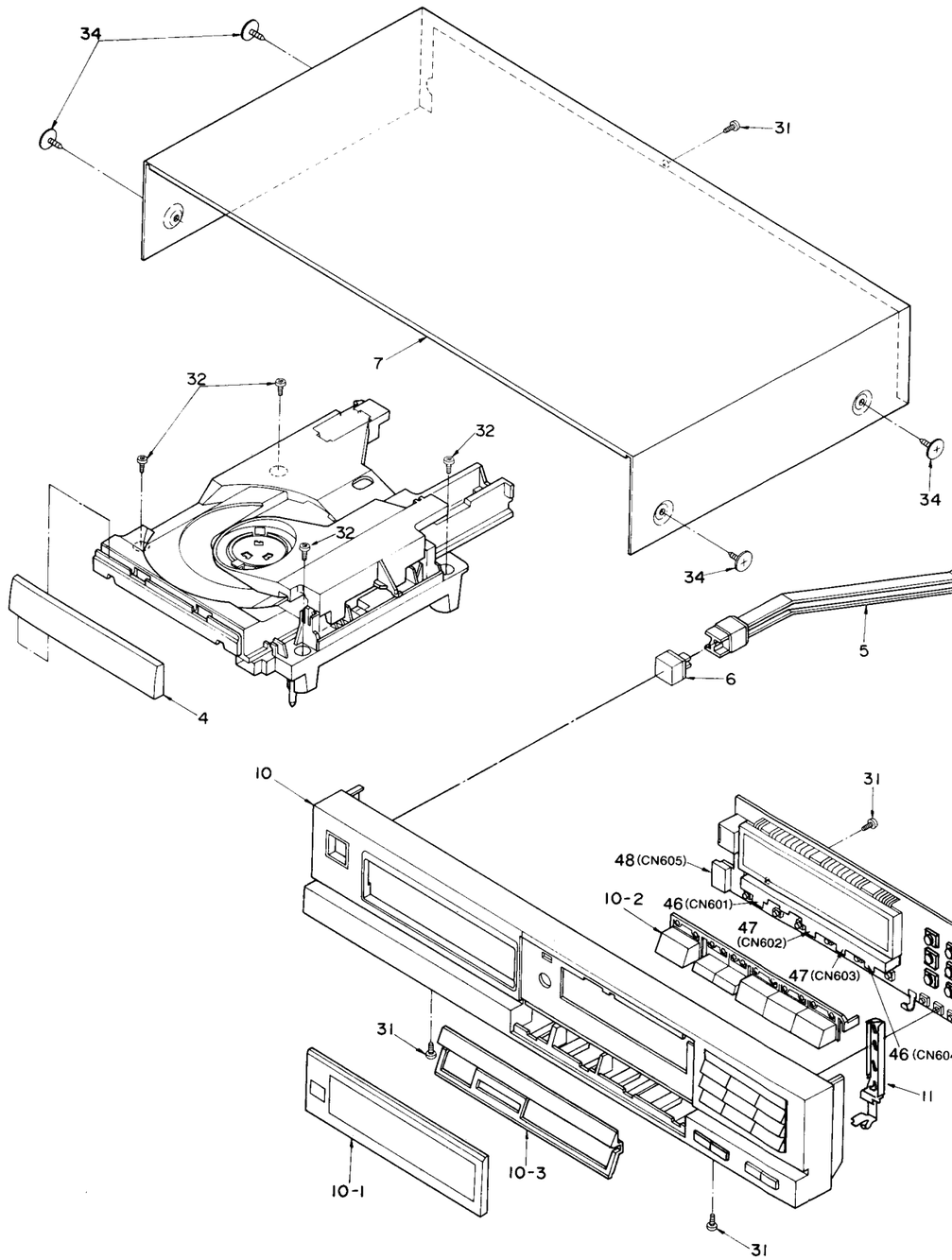
Note: Apply specified grease on the portion indicated by ×××.

■ EXPLODED VIEW

1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H

•Cabinet parts



Ref. No.		Part No.	Description
CABINET AND CHASSIS			
1		SKUD250ZF0A	CHASSIS
2		SGPD800ZF2D	REAR PANEL
3		SKLD8-E	FOOT
4	Ⓚ	SGXD3380ZK0A	ORNAMENT
4	Ⓢ	SGXD3380MA0A	ORNAMENT
5		SUBD15-1	ROD
6	Ⓚ	SBC666-1	BUTTON, POWER
6	Ⓢ	SBC666	BUTTON, POWER
7	Ⓚ	SKCD512KE1A	CABINET
7	Ⓢ	SKCD512SW1A	CABINET BODY
8		SHE185-2	HOLDER
10	Ⓚ	SGYLP202-KE	FRONT PANEL
10	Ⓢ	SGYLP202-SE	FRONT PANEL
10-1		SGUD225	ORNAMENT
10-2	Ⓚ	SBCD5290ZK0B	BUTTON, OPERATION
10-2	Ⓢ	SBCD5290MA0A	BUTTON, OPERATION
10-3	Ⓚ	SGXD3371ZK1A	ORNAMENT
10-3	Ⓢ	SGXD3371SW1A	ORNAMENT
11	Ⓢ	RMC0013	BRACKET
17	⚠	SJS9236	AC INLET
18		SJJ146B	JACK
19		SJFD4M	TERMINAL BOARD
21		SIKD552062	FLAT CABLE
31		XTB3+8JFZ	SCREW
32		XTB3+8F	SCREW
33		XTB3+16JFZ	SCREW
34	Ⓚ	SNE2129-1	SCREW
34	Ⓢ	SNE2129	SCREW
41		SJT30643-VML	CONNECTOR (6P)(CN11)
42		SJT30543-VM	CONNECTOR(5P)(CN401)
43		SJSD2221M	SOCKET (22P)(CN402)
44		SJS50780WLM	CONNECTOR(7P)(CN411, 414)
45		SJS50680WLM	SOCKET(6P)(CN412, 413)
46		SJT30747WL	CONNECTOR(7P)(CN601, 604)
47		SJT30647WL	CONNECTOR(6P)(CN602, 603)
48		EMCS0750ZL	CONNECTOR(7P)(CN605)

Ref. No.		Part No.	Description
TRAVERSE DECK			
102		SISD22-1	TRAVERSE BASE
103		SD0D28-1E	TURNTABLE
103-1		XXE26D5	SCREW
104		SD0D29-2	RING
106		SRQA010N04	SPRING
107		S0RD37	ROLLER
108		S0RD38-E	COIL
109		SUXD123-1	GUIDE SHAFT
110	⚠	S0AD70A	OPTICAL PICKUP
111		SHRD176-E	COIL HOLDER
113		SHGD148	STOPPER
114		S0YD21-E	YOKE
115		S0YD22	YOKE
116		SHRD177-1	LOCK UNIT
117		SHWD33	WASHER
118		SHWD34	WASHER
119		SNSD31	SCREW
120		XTN2+5G	SCREW
121		XYN2+C8	SCREW
122		XYN26+J6	SCREW
123		SHGD153-1	CUSHION RUBBER
124		SUSD136-1	SPRING
125		SUSD137-1	SPRING
126		SNSD33	SCREW
127		SIWLP555-KN	LOADING BASE
128		SUSD145-1	SPRING
129		SUWD112	GUIDE SHAFT HOLDER
131		SDGD58	MAIN GEAR
132		SDGD59-2	GEAR
133		SIRD94-E	LOADING MOTOR
134		XTB3+10G	SCREW
135		SMBD7	BELT
137		SFUMZ15R61	WASHER
138		SDRD14	ROLLER
139		XTB3+8G	SCREW
140		SIRD97-2E	HOLDER
141		SIRD107-1	TRAY BASE
142		SIRD40-2	RACK GEAR
143		SIRD96	LOCK LEVER
145		SIRD98-2	DISC TRAY
146		SUSD83	SPRING
147		SNSD36	SCREW
148		SIWD105	BRACKET
149		SJGDRF310T-2	SPINDLE MOTOR
150		SIRD51-1	HOLDER
151		SIRD42-3	LEAD WIRE CLAMP
152		S0MD4	MAGNET
153		S0YD2	YOKE
154		SIKD150051	FLAT CABLE
155		SIKD150221-1	FLAT CABLE
156		SHRD150	ROLLER HOLDER
157		SJSD1722M	SOCKET(17P)
158		SJSD2222M	SOCKET(22P)
159		SJT30543-V	CONNECTOR(5P)
160		SDRD12	ROLLER
161		EMCS0552MP	CONNECTOR(5P)

Ref. No.		Part No.	Description
PACKING MATERIAL			
P1	Ⓚ	SPND367	PACKING CASE
P1	Ⓢ	SPND368	PACKING CASE
P2		SPSD188	PAD(FL)
P3		SPSD189	PAD(FR)
P4		SPSD190	PAD(BL)
P5		SPSD191	PAD(BR)
P6		XZB60X60A01	PROTECTION BAG(UNIT)
P7		XZB26X17C03	PROTECTION BAG(CORDS)
P8		SPSD152	ACCESSORY BOX
ACCESSORIES			
A1		SQUD414	INSTRUCTION MANUAL
A1		SQUD415	INSTRUCTION MANUAL
A2	⚠	SJA187	POWER CORD
A3		SJP2249-3	OUTPUT CORD

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